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TENTH BIENNIAL REPORT

OF THE

STATE MINE INSPECTORS

TO THE

GOVERNOR OF THE STATE OF IOWA

FOR THE

TWO YEARS ENDING JUNE 30, 1901.

JAMES A. CAMPBELL, District No. 1; JOHN VERNER, District No. 2;
JAMES W. MILLER, District No. 3.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY

DES MOINES:
BERNARD MURPHY, STATE PRINTER.
1901.

(Iowa)
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BIENNIAL REPORT

OF THE

FIRST DISTRICT,

EMBRACING

Appanoose, Davis, Jefferson, Monroe, Page, Taylor, Van Buren, Wapello and Wayne Counties.

JAMES A. CAMPBELL, INSPECTOR.

LETTER OF TRANSMITTAL.

To the Hon. Leslie M. Shaw, Governor of Iowa:

SIR—I have the honor, in compliance with the mining laws of Iowa, to submit to you herewith my biennial report for the two years ending June 30, 1901.

In it will be found tabulated statements giving number of mines, and number of miners and other employees, also the amount paid the same, number of tons of coal produced, number of fatal and non-fatal accidents, number of new mines and abandoned mines, and all improvements made in the district, and other information I deemed of importance to incorporate.

Respectfully,

JAS. A. CAMPBELL.

REPORT OF FIRST DISTRICT.

In the First district there are nine coal producing counties, namely: Appanoose, Davis, Jefferson. Monroe, Page, Taylor, Van Buren, Wapello and Wayne. They are located in the southeastern, southern and south western part of the state. Van Buren and Jefferson counties on the east, and Page on the west, are the extremities of the district. The counties in this district producing the largest output of coal are Monroe, Appanoose, Wapello, and Wayne. The mines in general have been working more steadily than heretofore, giving employment to more men, owing to a greater demand for coal and the opening of new mines, which has placed the district in a prosperous condition.

In the last two years there have been eighteen fatal and thirty-four non-fatal accidents in the district.

There has been a number of drills prospecting in the different parts of the district for the last eighteen months.

During the last two years there have been twenty-seven new mines opened. Most all of them are equipped with the latest improvements for ventilating and handling the coal. The new mines are located as follows: Wapello Coal. Co. No. 3, near Hiteman; Consolidated Coal Co. Nos. 10 and 11, two and one-half and three miles southwest of Buxton; Smoky Hollow Coal Co. No. 6, five miles southeast of Hynes City; Hocking Coal Co. No. 2, near Hocking; St. Paul Coal Co., near Hilton; Frederick Coal Co., near Avery; White Ash Coal Co., near Hynes City; Star Coal Co. No. 2, near Albia; Thistle Coal Co. No. 2, two miles east of Cincinnati; Artic Coal Co., near Mystic; Columbia Coal Co. No. 3, near Diamond P. O.; Browning Coal Co. No. 2, New Market; Ingram Coal Co., two and one-half miles southwest of Clarinda; Anderson Coal Co. No. 2, two and one-half miles east of New Market; Chicago Coal Co, No. 2, two miles east of Seymour; Bear Creek Coal Co., four miles east of Ottumwa; Eldon Coal and Coke Co., two miles southwest of Eldon; Lunsford Coal Co., eight miles south of Bloomfield; Finley Coal Co. and Carson Coal Co., near Douds; Perlee Coal Co., near Perlee; Drake Coal Co., three miles east of Exline; Mystic Coal Co. No. 2, Mystic.

Five mines were abandoned—Smoky Hollow Coal Co. No. 5, near Hynes City; Browning Coal Co. No. 1, near New Market; Darby Block Coal Co., near Darbyville; Finley Coal Co. and Carson Coal Co., near Douds.

Fires have occurred at five different mines, as follows: The Appanoose Coal Co's. top plant, at Cincinnati; Consumers' Coal Co., top works, at Jerome; a part of the top works of the Merchants' Coal Co. mine at Cincinnati; the smokestack and timber in airshaft all burned at Centerville Block

Coal Co's. mine No. 5, at Brazil; and the Machine and Blacksmith shops at the Deep Vein Coal Co's. mine at Foster.

During the last two years there have been forty-eight sets of scales inspected. Thirty-one were found weighing correctly, and seventeen were found deficient. They were adjusted and made to weigh correctly, giving satisfaction to all concerned.

TABLE No. 1.

Showing the number of mines, out-put of coal, number of miners and other employes, etc., in District No. 1, for the year ending June 30, 1900.

NAME OF COUNTY.	Number of miners.	Number of tons of coal all grades produced.	Number of miners employed.	Number others employed.	Total amount paid miners, including yardage room turning, etc.	Total amount paid others, including cost of supervision.	Value props, lumber, tracking, etc.	Cost of improvements made during year, including air and escape shafts.	Average price paid for mining lump coal.	Average price paid for mining mine run coal.
Appanoose.....	76	645,403	1,833	585	$ 568,283	$ 182,114	$ 46,656	$ 19,312	.85	.75
Monroe.	18	641,928	1,148	546	392,924	236,351	32,559	22,952	.80	.51⅔
Wapello	20	296,620	483	186	197,389	76,609	14,775	6,700	.80	.52
Wayne ...	6	48,800	125	31	35,480	11,890	1,550	700	.85	.....
Taylor	7	22,682	81	24	27,485	8,895	920	2,169	1.20	.....
Van Buren.....	4	13,368	30	13	10,720	5,446	850	525	.80	.....
Davis	5	5,750	40	15	4,600	1,660	350	200	.80	...
Jefferson.	3	4,500	22	6	3,600	1,640	300	100	.80	....
Total	139	$ 1,679,051	3,762	1,406	$ 1,240,481	$ 524,515	$ 97,960	$ 52,658	...	

TABLE No. 2.

Showing the number of mines, out put of coal, number of miners and other employes, etc., in District No. 1, for the year ending June 30, 1901.

NAME OF COUNTY.	Number of miners.	Number of tons of coal of all grades produced.	Number of miners employed.	Number others employed.	Total amount paid miners, including yardage room, turning, etc.	Total amount paid others including cost of supervision.	Value props, lumber, tracking, etc.	Cost of improvements made during year, including air and escape shafts.	Average price paid for mining lump coal.	Average price paid for mining mine run coal.
Appanoose	73	650,400	1,790	530	$ 677,300	$ 195,500	$ 51,700	$ 22,500	.95	.....
Monroe.....	19	937,750	1,330	618	672,570	273,255	68,300	71,400	.85	....
Wapello	18	289,300	490	160	224,400	87,540	12,000	2,500	.85	....
Wayne	6	50,200	137	40	53,440	15,430	16,000	800	.95	.....
Taylor	7	20,400	90	24	31,740	8,500	900	400	1.26	.....
Van Buren....	6	6,500	26	9	7,300	2,900	200	150	.90	.....
Davis	4	4,300	21	7	5,850	1,750	150	75	.80	.....
Jefferson.....	3	3,500	17	6	4,730	1,840	150	150	.80	.....
Page.....	2	1,700	5	2	2,100	960	50	50	1.35	...
Total	138	$ 1,964,050	3,906	1,396	$ 1,679,430	$ 587,675	$149,450	$ 98,025	.....	.....

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TABLE No. 3.

Out-put of coal of the counties comprising District No. 1 for the past five years:

COUNTIES.	1897.	1898.	1899.	1900.	1901.
Appanoose	372,402	421,100	444,282	645,403	650,400
Davis	3,120	2,900	3,300	5,750	4,300
Jefferson	5,000	4,000	4,500	4,500	3,500
Monroe	389,706	590,300	662,500	641,928	937,750
Page	7,250	5,050	6,085	.....	1,700
Taylor	13,200	11,800	14,100	22,682	20,400
Van Buren	14,300	11,200	12,500	13,368	6,500
Wapello	152,203	236,100	291,300	296,620	289,300
Wayne	32,120	41,200	48,300	48,800	50,200

APPANOOSE COUNTY.

Improvements made in the mines during the last two years.

NAME OF MINE.	Air shaft.	Second opening.	Stairway.	Cover on cage.	Safety catches.	Safety gates.	Break on drum.	Fan.	Furnace.	Trailor or dog.	Safety block.
Centerville, block No. 7	1	....	....	....	....	....	....	....	1	....	....
Centerville, block No. 5	....	....	....	....	....	....	....	....	1	....	....
Mystic Coal company	1	....	....	....	....	....	....	....	1		....
Hocking Coal company	1	....	....	....	....	....	....	....	1	....	....
Drake Coal company	....	1	....	....	....	....	....	....	1	....	
Dewey Coal company	1	1	1	2	2	2	1	1	....	....	....
Juckett Coal company	....	.....	....	....	....	1	1	1	....	....	....
Mendota Coal and Mining company	1	....	1	2	2	2	1	1	....	....	....

MONROE COUNTY.

Wapello Coal company, No. 1	1	....	....	....	....	....	....	1	....	....	....
Wapello Coal company, No. 3	1	....	....	....	....	....	....	1	....	....	....
Consolidation Coal company, No. 10	1	1	1	2	2	4	1	1	....	....	....
Consolidation Coal company, No. 11	1	1	1	2	2	4	1	1	....	....	....
Hocking Coal company No. 2	1	1	1	2	2	4	1	1	....	....	....
St. Paul Coal company	1	1	....	2	2	4	1	1	....	....	....
Smoky Hollow, No. 6	1	1	1	....	....	....	....	1	....	1	1
Rex Coal company	1	....	....	....	....	....	....	....	....	....	....
Fredrick Coal company	1	1	....	2	1	2	1	1	....	....	....
Deep Vein Coal company	....	1	....	....	....	....	....	1	....	....	....
Star Coal company, No. 2	....	1		2	2	2	1	1	....	....	..

PAGE COUNTY.

Ingram Coal company	1	1	....	1	1	2	....	....	1	....	....

WAPLLO COUNTY.

Bear Creek Coal company	1	1	....	....	....	.....	....	....	1	1	1
Fair Coal company	1	....	....	....	....	....	....	....	1	....	....
Risher Coal company	1	....	....	2	2	4	1	1	....	....	.....
Eldon C. and M. company	1	....	....	....	....		....	....	....	....	....
Eldon Coal and Coke company	1	....	....	....	.....	....	....	....	1	1	1

TAYLOR COUNTY.

Anderson Coal company	....	1	....	2	2	2	1	....	1	....	...
Browning Coal company	....	....	....	1	1	2	1	....	1	....	....

AMOUNT OF COAL MINED IN IOWA SINCE 1881.

YEARS.	District No. 1.	District No. 2.	District No. 3.	Totals.
1881	845,600	1,426,744	900,430	3,262,774
1882	940,000	1,258,146	1,010,000	3,208,146
1883	1,099,503	1,470,024	1,413,419	3,989,046
1884	1,040,895	1,413,811	1,447,585	3,902,291
1885	1,156,224	1,231,963	1,194,469	3,582,656
1886	1,264,433	1,488,200	900,741	3,853,374
1887	1,426,841	1,645,978	791,671	3,864,490
1888	1,528,967	1,663,206	931,727	4,123,900
1889	1,395,156	1,461,518	806,064	3,662,738
1890	1,314,767	1,598,950	1,066,787	3,980,504
1891	1,136,190	1,533,496	1,051,295	3,720,981
1892	1,380,860	1,695,735	970,884	4,047,479
1893	1,697,215	1,784,800	1,132,857	4,614,872
1894	1,397,631	1,462,626	16,434	3,776,691
1895	994,054	1,347,830	853,952	3,195,836
1896	989,768	1,476,700	1,059,022	3,525,490
1897	1,025,706	1,572,240	1,201,788	3,799,734
1898	1,354,350	1,672,913	1,370,459	4,142,222
1899	1,520,467	1,873,793	1,555,050	4,949,304
1900	1,679,050	1,930,214	1,508,020	5,117,284
1901	1,964,050	1,870,123	1,607,690	5,441,863

APPANOOSE COUNTY.

NAME OF COMPANY, FIRM OR OPERATOR.	SUPERINTENDENT.	POST OFFICE ADDRESS.	Shaft or slope.	PLAN OF WORKING MINE.	HOW VENTILATED.	Power used.	Shipping or local.
Centerville Block Coal Co , No. 1	Alex. Dargavell	Centerville	Shaft	Room and pillar	Fan	Steam	Shipping.
Centerville Block Coal Co., No. 2	Alex. Dargavell	Centerville	Shaft	Room and pillar	Fan	Steam	Shipping.
Centerville Block Coal Co., No. 3	Alex. Dargavell	Centerville	Shaft	Room and pillar	Fan	Steam	Shipping.
Centerville Block Coal Co., No. 4	Alex. Dargavell	Centerville	Slope	Long wall	Furnace	Steam	Shipping.
Centerville Block Coal Co., No. 5	Alex. Dargavell	Centerville	Slope	Long wall	Furnace	Steam	Shipping.
Centerville Block Coal Co., No. 6	Alex. Dargavell	Centerville	Slope	Long wall	Furnace	Horse	Shipping.
Centerville Block Coal Co , No. 7	Alex. Dargavell	Centerville	Slope	Long wall	Furnace	Horse	Shipping.
Centerville Block Coal Co., No. 9	Alex. Dargavell	Centerville	Shaft	Room and pillar	Fan	Steam	Shipping.
Centerville Block Coal Co., No 10	Alex. Dargavell	Centerville	Shaft	Room and pillar	Furnace	Steam	Shipping.
Mendota Coal and Mining Co., No. 1	B. H. Johnson.	Mendota, Mo.	Shaft	Long wall	Fan	Steam	Shipping.
Mendota Coal and Mining Co., No. 2	B. H. Johnson.	Mendota Mo.	Shaft	Long wall	Fan	Steam	Shipping.
Anchor Coal Co., No. 1	James Wilson	Centerville	Shaft	Long wall	Fan	Steam	Shipping.
Anchor Coal Co., No. 2	James Wilson	Centerville	Shaft	Long wall	Fan	Steam	Shipping.
Anchor Coal Co., No. 3	James Wilson	Centerville	Shaft	Long wall	Fan	Steam	Shipping.
Whitebreast Fuel Co., No. 19	T. J. Phillips	Ottumwa	Shaft	Long wall	Fan	Steam	Shipping.
Numa Coal Co.	Geo. Widmer	Seymour	Shaft	Long wall	Fan	Steam	Shipping.
Star Coal Co.	Geo. McCleary	Rathbun	Shaft	Long wall	Fan	Steam	Shipping.
Scandinavian Coal Co	Claus. Johnson	Centerville	Shaft	Long wall	Fan	Steam	Shipping.
Consumers Coal Co	F. R. Gable	Cedar Rapids	Shaft	Long wall	Fan	Steam	Shipping.
Big Joe Coal Co., No 1	Robt. Hunter	Coal City, Ill	Shaft	Long wall	Fan	Steam	Shipping.
Big Joe Coal Co. No. 2	Robt. Hunter	Coal City, Ill	Shaft	Long wall	Furnace	Steam	Shipping.
Tipton Co-operative Coal Co	A. W. Buel	Brazil	Slope	Long wall	Furnace	Horse	Shipping.
Iowa and Missouri Coal Co	Jas. Seddon	Mystic	Slope	Long wall	Furnace	Steam	Shipping.
Brazil Coal Co	B. F. Silknetter	Brazil	Slope	Long wall	Furnace	Horse	Shipping.
Columbia Coal Co., No. 1	Wm. Baker	Centerville	Slope	Long wall	Furnace	Steam	Shipping.
Columbia Coal Co., No. 2	Wm. Baker	Centerville	Slope	Long wall	Furnace	Electric	Shipping.
Electric Coal Co., No. 1	Thos. E. Lee	Centerville	Slope	Long wall	Furnace	Horse	Shipping.
Electric Coal Co., No. 2	Thos. E. Lee	Centerville	Shaft	Long wall	Furnace	Horse	Shipping.
Electric Coal Co., No. 3	Thos. E. Lee	Centerville	Shaft	Long wall	Furnace	Horse	Shipping.
Electric Coal Co., No. 4	Thos. E. Lee	Centerville	Shaft	Long wall	Furnace	Horse	Shipping.
Electric Coal Co., No. 5	Thos. E. Lee	Centerville	Slope	Long wall	Furnace	Horse	Shipping.
Electric Coal Co., No. 6	Thos. E. Lee	Centerville	Slope	Long wall	Furnace	Horse	Shipping.
Phoenix Coal Co.	Jas. Turner	Brazil	Slope	Long wall	Furnace	Horse	Shipping.
Thistle Coal Co., No 1	David Steel	Cincinnati	Shaft	Long wall	Fan	Steam	Shipping.
Thistle Coal Co., No. 2	David Steel	Cincinnati	Shaft	Long wall	Fan	Steam	Shipping.
Eagle Coal Co	Smith	Cincinnati	Shaft		Furnace	Horse	Shipping.

Merchants Coal Co	J. D. Collins	Cincinnati	Shaft	Long wall	Fan	Steam	Shipping.
Hocking Coal Co., No. 1	Robt. Hughes	Cincinnati	Slope	Long wall	Furnace	Horse	Shipping.
Ludwick Bros., No. 1	David Ludwick	Mystic	Slope	Long wall	Furnace	Horse	Shipping.
Ludwick Bros., No. 2	David Ludwick	Mystic	Shaft	Long wall	Furnace	Horse	Shipping.
Mystic Coal Co., No. 1	Jas. Helm	Mystic	Slope	Long wall	Furnace	Horse	Shipping.
Mystic Coal Co., No. 2	Jas. Helm	Mystic	Shaft	Long wall	Furnace	Horse	Shipping.
Klondike Coal Co	Jno. Oughton	Mystic	Shaft	Long wall	Fan	Steam	Shipping.
Achon Coal Co., No. 1	Wm. Porter	Mystic	Shaft	Long wall	Furnace	Steam.	Shipping.
Achon Coal Co., No. 2	Wm. Porter	Mystic	Slope	Long wall	Furnace	Horse	Shipping.
Egypt Coal Co	A. V. Venell	Mystic	Slope	Long wall	Furnace	Steam	Shipping.
Lane Coal Co	Daniel Clark	Brazil	Shaft	Long wall	Furnace	Horse	Shipping.
Juckett Coal Co	Jno. Armstrong	Mystic	Shaft	Long wall	Fan	Steam	Shipping.
Orr Bros Coal Co., No 2	A. Orr	Mystic	Shaft	Room and pillar	Fan	Steam	Shipping.
Iowa Block Coal Co.	J. D. Bowen	Centerville	Slope	Long wall	Furnace	Steam	Shipping.
C. L. Arnot	C. L. Arnot	Mystic	Slope	Long wall	Furnace	Horse	Shipping.
Dewey Coal Co	Oscar Johnson	Centerville	Shaft	Long wall	Furnace	Horse	Shipping.
Peacock Coal Co	Thos. Filby	Brazil	Slope	Long wall	Furnace	Horse	Shipping.
Star Coal Co	J. G. Bland	Centerville	Shaft	Long wall	Furnace	Horse	Local.
Monitor Coal Co	A. D. Crawford	Centerville	Shaft	Long wall	Furnace	Horse	Local.
White Oak Coal Co	Jno. Burkland	Centerville	Shaft	Long wall	Furnace	Horse	Local.
Happy Coal Co	Chas. Erickson	Centerville	Shaft	Long wall	Furnace	Horse	Local.
North Hill Coal Co	L. S. Hall	Centerville	Shaft	Long wall	Furnace	Horse	Local.
Rock Valley Coal Co	L. S. Hall	Centerville	Shaft	Long wall	Furnace	Horse	Local.
Fox Coal Co	Wm. Fox	Centerville	Shaft	Long wall	Furnace	Horse	Local.
Richard Campbell	Richard Campbell	Brazil	Slope	Long wall	Furnace	Horse	Local.
Dickison Coal Co. No. 1	Jno. Dickison	Dean	Slope	Long wall	Furnace	Horse	Shipping.
Dickison Coal Co. No. 2	Jno. Dickison	Dean	Slope	Long wall	Furnace	Horse	Shipping.
Sam Houser	Sam Houser	Jerome	Shaft	Long wall	Furnace	Horse	Local.
Jas Broser	Jas. Broser	Jerome	Shaft	Long wall	Furnace	Horse	Local.
Dean & McFall	Wm. Mc Fall	Jerome	Shaft	Long wall	Furnace	Horse	Local.
Aston Lee Coal Co.	Aston Lee	Mystic	Slope	Long wall	Furnace	Horse	Local.
Peter Anderson	Peter Anderson	Mystic	Slope	Long wall	Furnace	Horse	Local.
Ben Morris	Ben Morris	Mystic	Slope	Long wall	Furnace	Horse	Local.
Ira Grim	Ira Grim	Dean	Slope	Long wall	Furnace	Horse	Local.
Joseph Guim	Jos. Guim	Dean	Slope	Long wall	Furnace	Horse	Local.
Allen Coal Co. No. 1	Geo. Allen	Dean	Slope	Long wall	Furnace	Horse	Local.
Allen Coal Co. No. 2	Geo. Allen	Dean	Slope	Long wall	Furnace	Horse	Local.
Geo. Young	Geo. Young	Dean	Shaft	Long wall	Furnace	Horse	Local.
McCleanent Coal Co.	Jno. Oughton	Exline	Slope	Long wall	Furnace	Steam	Shipping.
Drake Coal Co	J. Drake	Exline	Shaft	Long wall	Furnace	Horse	Shipping.

MONROE COUNTY.

Wapello Coal Co. No 1	P. H. Waterman	Hiteman	Shaft	Room and pillar	Fan	Steam	Shipping.
Wapello Coal Co. No 2	P. H. Waterman	Hiteman	Shaft	Room and pillar	Fan	Steam	Shipping.
Wapello Coal Co. No. 3	P. H. Waterman	Hiteman	Shaft	Room and pillar	Fan	Steam	Shipping.
Hocking Coal Co. No. 1	Jno. Schuller	Hocking Valley	Shaft	Room and pillar	Fan	Steam	Shipping.

MONROE COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	SUPERINTENDENT.	POST OFFICE ADDRESS.	Shaft or slope.	PLAN OF WORKING MINE.	HOW VENTILATED.	Power used.	Shipping or local.
Hocking Coal Co. No. 2	Jno Schuller	Hocking Valley	Shaft	Room and pillar	Fan	Steam	Shipping.
Smoky Hollow Coal Co No. 4	F. Hines	Hines City	Slope	Room and pillar	Fan	Steam	Shipping.
Smoky Hollow Coal Co. No 5	F. Hines	Hines City	Slope	Room and pillar	Fan	Steam	Shipping.
Smoky Hollow Coal Co. No. 6	F. Hines	Hines City	Slope	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal Co. No. 10	B C. Buxton	Muchakinock	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal Co. No. 11	B. C. Buxton	Muchakinock	Shaft	Room and pillar	Fan	Steam	Shipping.
St. Paul Coal Co.	T. J. Phillips	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Central Coal Co	Geo Young	Hickory	Slope	Room and pillar.	Furnace	Steam	Shipping.
Diamond Coal Co. No. 1	A. B. Little	Coalfield	Slope	Room and pillar	Fan	Steam	Shipping.
Deep Vein Coal Co. No. 1	A. Erskin	Ottumwa.	Shaft	Room and pillar	Fan	Steam	Shipping.
Star Coal Co	N. A. Flanders	Albia	Shaft	Room and pillar	Fan	Steam	Shipping.
Deep Vein Coal Co. No. 2	A. Erskin	Ottumwa	Shaft	Long wall	Furnace	Horse	Shipping.
Fredrick Coal Co	Joe Scavenger	Avery	Shaft	Room and pillar	Fan	Steam	Shipping.
White Ash Coal Co	Jas Smith	Avery	Slope	Room and pillar	Furnace	Horse	Shipping.

WAPELLO COUNTY.

Whitebreast Fuel Co., No. 22	Wm. Williams.	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Phillips Fuel Co., No. 4.	A Erskins	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Lunsden Coal Co., No. 3	D. L. Lumsden	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Eldon Coal and Mining Co	W. R. Daum	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Carbon Coal Co	L. Ludwick	Willard	Shaft	Room and pillar	Fan	Steam	Shipping.
Bear Creek Coal Co	Robt. Parker	Ottumwa	Slope	Room and pillar	Furnace	Horse	Shipping.
S. Ottumwa C. and M. Co	Jno Jones	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local.
Star Coal Co	Robt. Peditt	Ottumwa	Slope	Room and pillar	Fan.	Steam	Local.
Baker Coal Co	L. Brown	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local.
Adams Coal Co	A. P. Adams	Ottumwa	Shaft	Room and pillar.	Furnace	Horse	Local.
Spring Valley Coal Co	Chas. Oleson	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local.
Sampson Coal Co	Jno Chapman	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local.
Excelsior Coal Co	E Stire	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local.
Black Hawk Coal Co	A. C. Caughlin	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local.
Risher Coal Co	R. Risher	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local
Fair Coal Co	E. Fair.	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local.
Cooper Coal Co., No. 1	Wm. Cooper	Ottumwa	Slope	Room and pillar	Grate	Horse	Local.

Cooper Coal Co., No. 2	Wm. Cooper	Ottumwa	Slope	Room and pillar	Grate	Horse	Local.
Eldon Coal and Coke Co	D. J. Loyd	Eldon	Shaft	Room and pillar	Grate	Steam	Shipping.
McIntosh Coal Co	Jas. McIntosh	Eldon	Shaft	Rsom and pillar	Furnace	Horse	Local.

VAN BUREN COUNTY.

Findley Bros	H. Findley	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping.
Wm. R. Carson	W. R. Carson	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping.
Radcliff Coal Co	H. L. Radcliff	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping.
Cahill Coal Co	C. A. Cahill	Farmington	Shaft	Room and pillar	Furnace	Horse	Local.

JEFFERSON COUNTY.

Pearlee Coal Co	J. E. Courtney	Perlee	Shaft	Room and pillar	Furnace	Horse	Shipping.
Wilcox Coal Co	Wm. Wilcox	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local.
Bates Coal Co	G. W. Bates	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local.

WAYNE COUNTY.

Chicago Coal Co, No. 1	Peter Thomas	Seymour	Shaft	Long wall	Fan	Steam	Shipping.
Chicago Coal Co., No. 2	Peter Thomas	Seymour	Shaft	Long wall	Fan	Staam	Shipping.
Seymour Coal Co	Geo. L. Moore	Seymour	Shaft	Long wall	Fan	Steam	Shipping.
Lewis Fry	Lewis Fry	Confidence	Shaft	Long wall	Fan	Steam	Local.
Will L. Rousson	W. L. Rousson	Confidence	Slope	Long wall	Furnace	Horse	Local.
Aaron Radcliff	Aaron Radcliff	Confidence	Slope	Long wall	Furnace	Horse	Local.

DAVIS COUNTY.

Lunsford Coal Co	A. C Lunsford	Lunsford	Shaft	Room and pillar	Furnace	Horse	Local.
Thomas Dial	Thomas Dial	Laddsdale	Slope	Room and pillar	Furnace	Horse	Local.
Jno. Jordan	Jno. Jordan	Eldon	Slope	Room and pillar	Furnace	Horse	Local.
G. W. Dye	G. W. Dye	Eldon	Slope	Room and pillar	Furnace	Horse	Local.
J. Teesdale	J. Teesdale	Eldon	Slope	Room and pillar	Furnace	Horse	Local.

TAYLOR COUNTY.

Campbell Coal Co	Rodrick Campbell	New Market	Shaft	Long wall	Furnace	Horse	Shipping.
Anderson Coal Co., No. 1	Thos. Anderson	New Market	Shaft	Long wall	Furnace	Horse	Shipping.
Anderson Coal Co., No. 2	Thos. Anderson	New Market	Shaft	Long wall	Furnace	Horse	Shipping.

TAYLOR COUNTY—CONTINUED.

NAME OF COMPANY, FIRM OR OPERATOR.	SUPERINTENDENT.	POST OFFICE ADDRESS.	Shaft or slope.	PLAN OF WORKING MINE.	HOW VENTILTED.	Power used.	Shipping or local.
Browning Coal Co	Wm. Browning	New Market	Shaft	Long wall	Furnace	Horse	Shipping.
Wilcox Coal Co	Wm. Wilcox	New Market	Shaft	Long wall	Furnace	Horse	Local.
Geo. Walsh mine	Geo. Walsh	New Market	Shaft	Long wall	Furnace	Horse	Local.
James Jamison mine	James Jamison	New Market	Shaft	Long wall	Furnace	Horse	Local.

PAGE COUNTY.

Ingram Coal Co	J. Ingram	Clarinda	Shaft	Long wall	Furnace	Horse	Local.
George Howard	George Howard	Shambough	Shaft	Long wall	Furnace	Horse	Local.

APPANOOSE COUNTY.

This county is underlaid with a very regular vein of coal; having double the amount of mines that any other county in the state has. The principal mining centers are Centerville and Mystic, there being more mines located within a radius of six miles of these points than in any other location in the county. The coal is worked on long wall and semi-long wall method. The coal is of an excellent quality, and one among the best domestic coals produced.

There were employed in the mines on an average, during the past biennial period, 1,809 miners and 545 day men, making, all told, employed in the mines, 2,354 men and boys, who produced, during the past two years, 1,295,800 tons of coal, receiving in wages, during the above period, $772,800, making an average for each employee working in and around the mines of $343; this certainly is a good showing, taking into consideration the large amount of mines that do very little work during the summer months.

There has been a great deal of improving going on in and around the mines, during the two years just passed; hoisting appliances, cages, tipples, fans, and a number of improvements which have materially aided those connnected with the coal business in the above county.

The county is favored with good railway facilities, having the Iowa Central, K. and W., C., St. P. and M., C. R. and P., and K. C. Railways, to carry her product to the northern, northwestern, and western markets.

MONROE COUNTY.

Monroe county has become the largest coal-producer in the first district, and promises to be the largest in the state, having within the past biennial period added several large mining plants and increased the output of a great many of the others. The county's location for railway facilities and railway business is second to none in the state.

The new mining plants, as well as the older ones, are equipped with the latest mining improved machinery and equipments. The vein of coal is of good quality and thickness, and the vast amount of drilling that has been done clearly shows the county to contain some of the largest basins of coal yet discovered within this section. This territory is practically open to invasion from northern feeders, and this naturally leads to the more rapid development of these rich fields.

There was produced during the first year of our biennial period, 642,000 tons of coal; during the last half of our biennial there was produced 938,000 tons, nearly reaching the million point; being a net gain in favor of the last year of 295,822 tons, which is much the largest gain that was ever made in

any one county in a year during the history of mining in Iowa. Producing this coal gave employment to 1,235 miners and 590 day men, making a total of 1,825 employees working in and around the mines. There was paid during the last two years for wages 1,574,865 dollars; showing that Monroe county is nearing the top of the column of mining counties.

WAPELLO COUNTY.

This county has quite a large field of coal, although the mineral has been mined in large quantities for a number of years. The coal is of a good quality, giving excellent satisfaction as a stone coal. The veins are from three to five and one-half feet in thickness. There is a strong belief among the coal men that the largest basins of coal are, as yet, undeveloped, although there is a great deal of drilling being continued along that line, which certainly means new developments. The local mines, within a radius of three miles of Ottumwa, do an excellent local business, owing to the large demand from manufacturing plants located around the city, which are increasing in number very rapidly.

JEFFERSON COUNTY.

Jefferson county has produced coal, in small quantities, for a number of years, but the production for each has never been large. Coal averages about three and one-half to four feet in thickness and usually free from impurities. Coal brings very good prices at the local mines, which are worked principally during the winter months. Ventilation is furnished by furnace.

VAN BUREN COUNTY.

The coal-producing area of this county is small, none of the mines having railway connections. The coal is usually reached by shaft. Nearly all the mines now working are within a radius of three miles of Doud station. At most of the mines the miner delivers his coal on the cage.

Furnace ventilation prevails throughout the county. There are employed in and around the mines about fifty employes.

DAVIS COUNTY.

Davis county joins on the east one of the largest coal producing counties in the state, the same being Appanoose county. Yet, the county does not seem to increase its outpoot of coal to a very large extent. This county needs more prospecting, which if followed up will mean more mines and machinery for handling coal. The county is favored with good railroad facilities. The mines that are now being operated are within a short distance of Eldon.

WAYNE, TAYLOR, AND PAGE COUNTIES.

Wayne, Taylor, and Page counties compose the principal southern tier of coal-producing counties, also a part of the line which divides Iowa and Missouri.

The principal coal seam worked in the above counties lies at considerable depth. The seam is of uniform thickness and a number one quality. The C., M. & St. P., the C., R. I. & P., and the C., B. & Q. handle the coal from the various mines in these counties.

Quite a number of mines are operated exclusively for local business in the various parts of the counties. They are usually located where it requires the least expense to reach the coal and handle the same. Prices for mining in Taylor county average $1.20 per ton; in Wayne county 95c is paid; in Page county $1.00 per ton is paid. The long-wall method is used throughout the counties. Wayne county produced during the last biennial period 99,000 tons of coal, giving employment to 138 miners and 39 day men, making a total of 167 employes. There was paid out, during the biennial period for labor performed in producing the same, $116,200. Taylor county produced, during the same period, 43,080 tons, giving employment to on an average of 110 men, in and around the mines, and paid for wages, during the biennial period, $73,530.

The ventilation of some parts of the mines located in the above named counties, has, at times been deficient, especially during the spring and fall months, for the reason that there are those who use furnace ventilation and depend on different ones in the mine to look after the furnace; there not being sufficient output to enable them to employ one to do nothing else but look after the furnace; and for this reason the ventilation is very often neglected. Fans are being substituted in a number of places, which all tends to aid this section in better ventilation.

The companies producing the largest output of coal are the Chicago Coal Company, Nos. 1 and 2, and the Seymour Coal Company, each plant being located near Seymour.

There are in operation six mines in Wayne county, seven in Taylor county, and two in Page county, making a total of fifteen mines in the three counties.

FATAL ACCIDENTS.

Table showing Fatal Accidents in District No. 1, for the biennial period ending June 30, 1901.

DATE.	NAME OF DECEASED.	OCCUPATION.	CAUSE OF CASUALTY.	NAME OF COMPANY OR FIRM.	WHERE LOCATED.
July 14, 1899	Alfred Swinscoe	Pit Boss	Struch by balance weight.	Black Hawk	Ottumwa.
October 27, 1899	J. L. Woods	Cager	Something fell from top of shaft and struck him	Chicago Coal Co.	Seymour.
November 3, 1899	J. McKinzie	Cager.	Fell down shaft	Whitebreast Fuel Co	Cleveland.
January 10, 1900	H. Edwards	Miner	Fall of slate	Wapello Coal Co	Hiteman.
March 1, 1900	Wm. Browning	Cager.	Fell down shaft	Browning Coal Co	New Market.
March 19, 1900	Carter Perkins.	Miner.	Fall of slate	Hocking Coal Co.	Hocking Valley.
March 22, 1900	Jno. Hein	Miner.	Fall of slate	Star Coal Co	Ottumwa.
March 27, 1900	S. Listcon	Miner.	Fall of slate	Diamond Coal Co	Coalfield.
March 29, 1900	Chas. Carlson	Miner	Fall of slate		Hiteman.
May 28, 1900	W. M. Wilson	Driver	Fall of slate	Chicago Coal Co	Seymour.
June 18, 1900	Harry Allison	Miner.	Fall of slate	Mine No. 2	Hiteman.
August 28, 1900	Jno. Richards	Cager.	Something fell from top of shaft and struck him	Phillips Mine.	Ottumwa.
September 6, 1900	Harry Runyon	Miner.	Fall of slate	Keb Mines	Keb.
September 29, 1900	Robt. Evans	Miner.	Fall of slate	Keb Mines	Keb.
January 16, 1901	Frank Shirck.	Miner	Fall of coal	Centerville Block No. 5	Brazil.
June 5, 1901	Chas. Thornton	Miner	Fall of slate	Deep Vein	Foster.
June 6, 1901	G. Williams	Miner.	Fall of slate	Wapello Coal Co.	Hiteman.
February 28, 1901	G. C. Rains	Miner.	Fall of slate	Anderson Mine.	New Market

FIRST DISTRICT, NON-FATAL ACCIDENTS,

Table showing list Non-fatal Accidents District No. 1 for the biennal period ending June 30, 1901.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	RESIDENCE.
August 11, 1899	Frank E. Jane	Machine runner	Back injured		Centerville.
August 28, 1899	R. L. Evans	Timberman	Hip and back injured	Fall of slate	Hocking.
September 25, 1899	Jno. Martin	Miner	Back injured	Fall of slate	Avery.
October 9, 1899	Mack Wallace	Miner	Leg broken	Fall of coal	Centerville.
October 27, 1899	Wm. Veach	Machine runner	Back broken	Fall of slate	Centerville.
November 5, 1899	H. Mathews	Miner	Fracture of skull		Mystic.
November 27, 1899	Geo. Palmer	Miner	Legs bruised	Shot of coal	Avery.
December 12, 1899	R. Beknapp		Leg broken		Mystic.
January 10, 1900	Wm. Milligan	Miner	Back and head injured	Fall of slate	Hynes.
February 8, 1900	A. Zanning	Miner	Leg broken	Foot caught in Cage	Rathbun.
March 16, 1900	Wm. Mathews	Miner	Head and face burned	Powder exploded	Smoky Hollow.
March 16, 1900	J. B. James	Miner	Head and body burned	Powder exploded	Smoky Hollow.
March 22, 1900	J. Cudworth	Loader	Back injured	Fall of slate	Laddsdale.
March 28, 1900	Jno	Machine Runner	Lip and nose cut	Struck by chain	Laddsdale.
May 1, 1900	T. Semansky	Miner	Bruised and stunned	Hit by blown open door	Hynes.
June 18, 1900	W. Anderson	Day man.	Leg broken	Fall of slate	Foster.
June 25, 1900	Thos. Wignal	Miner	Back hurt	Fall of slate	Hynes
June 27, 1900	Peter Gorbet	Miner	Head cut and bruised		Hynes.
June 28, 1900	Chas. Morman	Miner	Hip bone cracked	Fall of coal	Mystic.
September 4, 1900	T. Keen	Miner.	Left hip bruised	Fall of slate	Laddsdale.
October 15, 1900	C F. Thayer	Miner.	Back strained	Fall of slate	Hynes.
October 30, 1900	A. Crelguge	Miner.	Bruised	Fall of coal	Forbush.
December 6, 1900	Arthur Jones	Miner		Fell down shaft	Cincinnati.
January 4, 1901	J. Winston	Tracklayer	Leg broken.	Fall of slate	Hiteman.
January 4, 1901	S. Anderson	Miner.	Leg broken	Fall of slate	Hiteman.
March 13, 1901	C. W. Carlson	Miner	Hip bruised	Fall of coal	Foster.
March 25, 1901	David Lewis	Miner	Hand injured	Struck with pick	Foster.
March 26, 1901	W. Williams	Miner	Burned	Spark dropped in powder	Foster.
April 6, 1901	S. J. Wrie	Miner	Injured internally	Fall of roof	Eldon.
April 23, 1901	J. Doyle	Company Man	Leg broken	Fall of slate	Hynes.
May 18, 1901	Burt Phillips	Machine Runner	Side hurt	Machine	Diamond.
June 26, 1901	Geo. Cook	Driver	Foot injured	Car run over foot	Avery.
June 26, 1901	Gust. Bleed.	Miner	Back and foot injured	Fall of slate	Avery.
January 4, 1901	R. Samuel	Tracklayer	Severe scalp wound	Fall of slate	Hiteman.

EXAMINATION HELD AUGUST 28, 1901.

IOWA STATE EXAMINATION FOR MINE FOREMAN AND PIT BOSSES—1901—FIRST SERIES.

1. Describe fully the duties of a mine foreman of an Iowa coal mine.

2. Define the following terms: Anemometer, regulator, water-gauge, indicator and tail-rope.

3. What is the ratio of the rubbing surfaces of two airways each 2,000 feet long when one is eight feet square and the other is six by ten and two-thirds feet sectional area?

4. What does the Iowa law require in the way of fans and furnaces for the ventilation of mines, and what are the duties of the mine inspector when he finds that these devices produce an insufficient amount of air, or that the mines are being worked under unsafe conditions?

5. What is the penalty for obstructing air-courses, disturbing machinery or doing anything that will impair the health or endanger the life of miners; and in case the owner of a mine fails to provide for the safety of his men after twenty days' notice, what should be done?

6. Give a rule for determining the horse-power necessary to ventilate a mine when the amount of air and the pressure required to circulate it are known.

7. Explain the principles of natural ventilation, and give reasons why the deeper shaft usually acts as an upcast in winter and downcast in summer.

8. What is the difference between longwall advancing and longwall retreating? Under what conditions would you prefer the latter process?

9. In what does an explosive develop its power? What is a blow-out shot, and what causes it?

10. What horse-power is used to ventilate a mine using 80,000 cubic feet of air per minute when the resistance of the air as shown by the water-guage is two inches.

SECOND SERIES.

11. What are the causes of spontaneous combustion, and how would you proceed to prevent it in a mine that produces a large amount of fine coal?

12. If a fan that makes eighty revolutions per minute produces 80,000 cubic feet of air per minute, how many revolutions must the same fan make in order to produce 100,000 cubic feet?

13. Where should a mining-shaft be located in opening up a mine, and what should be the size of shaft pillars for different depths of a mine? Under what conditions should these pillars be especially large?

14. How can the approximate velocity of an air current in a mine be determined without using an anemometer?

15. Describe an accurate method of using an anemometer in determining the velocity of an air-current in a mine.

16. Determine the motive column in a mine 400 feet deep when the temperature of the downcast is forty degrees and that of the upcast 120 degrees Fahrenheit?

17. What gases are commonly found in the coal mines of Iowa? Describe each fully and state what effect it has on the human system as well as method of testing for it?

18. How is a true meridian determined, and what is meant by the declination of a magnetic needle?

19. Describe the proper method of conducting the underground survey of a mine.

20. There are two rectangular airways each 3,000 feet long. One is five feet square and the other is four by 6.25 feet sectional area. When the pressure that is required to ventilate the square airway shows a water-gauge reading of 2.5 inches, what will be the pressure required to ventilate the other airway with the same amount of air?

IOWA STATE EXAMINATION FOR HOISTING ENGINEERS—1901—FIRST SERIES.

1. What are the duties of a hoisting engineer at the coal mines of Iowa, and what natural qualities should he possess?

2. Define the following terms: Combustion, dead center, lead, tensile strength and factor of safety.

3. Determine the horse-power of a fifty-inch cylinder boiler, thirty-two feet long, when it is set one-half exposed to the heat.

4. Give a complete definition of foaming and priming, and state as fully as possible the causes of each.

5. Describe a proper method of conducting a test to determine the safety of a boiler.

6. Determine the indicated horse-power of a single-cylinder engine having a piston ten inches in diameter with a twelve-inch stroke, when the crank makes 120 revolutions per minute, and the mean effective pressure of the steam is sixty pounds per square inch.

7. Describe the proper method of lining the crank-shaft of an engine.

8. How can hard scale be removed from the flues and sheets of a boiler, and what can you say about cleaning it at frequent intervals?

9. Describe the best method of firing a boiler that will insure economy in fuel and protection of the plates.

10. What steam pressure should be allowed in a boiler sixty inches in diameter, made of three-eighths steel plate, having a tensile strength of 65,000 pounds, when it is double riveted and operated under a factor of safety of five?

SECOND SERIES.

11. What is meant by the mechanical efficiency of an engine? Supppose the indicated horse-power of an engine is 180, and its resistance is twenty-two horse-power, what is its mechanical efficiency?

12. The diameter of a lever safety-valve is two inches. What weight must be attached to the lever twenty inches beyond the valve to allow the

steam to blow off at sixty pounds pressure, when the distance between the fulcrum and valve is four inches?

13. Explain all the principal safety appliances that are used in connection with a hoisting plant.

14. Give a full description of a block-brake and a band-brake, and state where each of these should be placed on a drum to give best results. Which of these brakes do you prefer? Why?

15. How can the safe working load of a steel cable be determined when its diameter is known? Give a rule that will apply to cables of all diameters.

16. Describe as fully as possible the method of conducting the hydraulic test of a boiler, and state when this may be better and when less satisfactory than the hammer test.

17. What can you say about erecting hoisting appliances at the beginning that will meet all the future requirements of a mine?

18. Describe the tail-rope and endless-rope systems of haulage, and explain fully the differences in the operation of each. Are both winding drums in gear at one time for tail-rope haulage? Give reasons for your answer.

19. Describe the construction and differences between a suction-pump and a force-pump, and explain fully the forces that operate each.

20. What horse-power is required to lift 300 cubic feet of water per minute through a vertical distance of 200 feet, when the friction of the machinery and the water in the pipes is one-third the power required to lift the water?

BIENNIAL REPORT

OF THE

SECOND DISTRICT,

EMBRACING

Mahaska, Keokuk, Lucas, Marion, Scott, Adams, and Warren Counties.

JOHN VERNER, INSPECTOR.

LETTER OF TRANSMITTAL.

Hon. Leslie M. Shaw, Governor of Iowa.

SIR—I have the honor to submit to you herewith the report of the Second inspection district, covering the biennial period ending June 30, 1901. Very respectfully,

JOHN VERNER,
Inspector Second District.

REPORT OF SECOND DISTRICT.

Since the last report it has been found advisable to rearrange the inspection districts to some extent. Of the counties which composed the old second inspection district only three remain in the new second district, Mahaska, Keokuk, and Scott. Jasper county was added to the third district, and Jefferson and Van Buren to the first. Adams, Warren, and Lucas from the first district and Marion from the third were placed in the second district. This arrangement makes the districts more compact, the work is divided better than formerly, and the expense of reaching the mines is somewhat reduced.

The district, as now constituted, includes the counties of Mahaska, Keokuk, Scott, Marion, Warren, Lucas, and Adams. These seven counties produced from July 1, 1899, to June 30, 1901, 3,800,337 tons of coal of all grades. This output came from 128 mines, large and small, and to mine and market it 2,759 miners and 1,252 other workmen were employed.

Comparing the output of coal in the above counties for the last two years with their output of the biennial period preceding, we note a net gain of 259,821 tons. This gain, however, is not a proportionate one in all the counties. Mahaska county's coal production diminished 346,312 tons, and Adams county's loss amounted to 9,349 tons. On the other hand, Lucas county gained 359,399 tons, Marion county 156,435 tons, Keokuk county 71,002 tons, Scott county 19,069 tons, and Warren county 9,577 tons.

During the two years the miners and others employed in and about the mines have gained many concessions from the operators. The price of mining two years ago, in those counties in the district where the coal is blasted from the solid, was 75 cents per ton of screened coal and 50 cents per ton of mine run. The screens in use then had diamond bars, spaced one and one-half inches apart. The price paid in eight foot entries was $2 per yard. Room turning was $4. Timbermen, drivers, tracklayers, cagers, and others employed in the mines received $1.89 per day. Outside common labor was paid $1.25 to $1.50 a day.

The price of mining at present is 85 cents per ton of screened coal, and 60 to 65 cents per ton of mine run. Akron bar screens have been substituted for the diamond bar screen, and the space between the bars has been reduced one-eighth of an inch. The price paid in eight foot entries is now $2.20 per yard and $4.48 is paid for room turning. The price for deficient and dead work has also been proportionately increased. Timbermen, drivers, tracklayers, cagers, and others employed in the mines receive at least $2.15 per day, and the minimum wage for outside common labor has been raised to $1.60 a day.

I believe I can say that the last two years have been the most successful in the coal trade of Iowa. Successful, not only from the operators' standpoint, but from the miners' as well. Abundant crops, heavy railroad traffic, prosperity in general, and the total absence of strikes and lockouts have contributed to give to the miners steadier work with better pay and to the operators the fair profit they are entitled to. The yearly meetings of the operators and miners, to adjust the wage-sc ale in a way that may be mutually satisfactory, have also had their influence, and have done much to place the coal business on a more staple basis. It means much to the operator to have the reasonable assurance that he can run his mine for a year, without having to fear or take into consideration when making his contracts emergencies that may arise on account of wage disputes between himself and the miners in his employ. On the other hand the miner is equally benefited by this arrangement. He knows that, after the ratification of the yearly agreement, for twelve months he may labor at fair wages, free from dread that his earnings may be cut off and himself and family placed in want through a strike or lockout. It is to be hoped that the miners and operators will continue to adjust what differences may arise between them with the spirit of justice and fairness that has prevailed in the past.

The condition of the mines in the district with regard to safety has been fair. Considerable work has been done during the last two years to bring about improvements in this direction. Additional escape-shafts have been provided in a number of mines, the haulage and traveling roads have been kept reasonably safe, and the safety appliances in use have in the main been found satisfactory and in good order. Not a man has been injured on account of unsafeness of entries in going to or returning from his work during the last two years, and no serious accident has resulted from defective safety appliances. Especial attention has been given to secure the safety of the miners in case of fire, and in some mines danger on that score has been reduced to a ~~mere~~ minimum. In a few cases mine stables were found so located that a fire breaking out in them would have proved a serious danger to the men in the mine at that time, but these stables have either been abandoned or measures provided to insure greater safety should a fire occur in them. In the absence of any legislation on this matter, I suggest that in the future all stables put underground be built as nearly fireproof as possible, and that they be so located that they can be ventilated by a separate split, directly connected with the return air current. Hay and straw should not be permitted to accumulate in any part of a mine, and the storage in a mine of large quantities of explosives and oil in one place should be avoided. Some months ago the miners in most mines in the district, where powder is used, requested the operators to send the powder ordered by them to their working places. The operators have generally complied with this request, and in some mines, to facilitate the handling of the powder, storage-places for it have been provided to hold a day's or perhaps two days supply. The danger incident to such storage is so grave that there should be no delay in discontinuing the practice, wherever it may exist.

The present mode of conveying the powder under this new arrangement through the mines is certainly more dangerous than the old way of getting the powder to the working places. I know what it means to carry a keg of powder for long distances underground, and I appreciate the desire of the

miner to be relieved of this tiresome task, but comfort purchased at the expense of safety is dearly bought. In each of the larger mines in the district from twenty to forty kegs of powder are used daily. Under the old system these kegs were taken inside by the miners who purchased them, and were carefully guarded by them against mishaps. Now the kegs are placed in one or two mine-cars, and in this way from 500 to 1,000 pounds of powder, in an almost compact mass, are sent into the mine during working hours. If by careless handling or by accident this mass of powder should explode a horrible calamity would result, and the loss of life would probably be limited only by the number of men in the mine at the time. The danger may be remote, but it exists. The possibility of such explosion occurring and its consequences should be sufficient to cause the discontinuance of a practice that apparently was adopted without due consideration of the danger involved. I do not object to the operators taking care of the powder until it reaches the purchaser at the working face, but it should be transported through the mines under safer conditions than prevail now.

While there has been no retrogression with regard to the sanitary conditions of the mines of the district, and while in many instances decided improvements along this line have been made, it remains a fact that perfection in this respect is still a long ways off. The powder-smoke nuisance is particularly objectionable. Nearly all the coal in the district is mined by blasting it from the solid, and in all the mines where powder is used, except two, the practice prevails of firing twice a day, in the middle of the shift and at quitting time. The ventilation provided for the mines, while with due care and in the absence of shot firing, sufficient to air them properly, is in a number of instances inadequate in those mines, where firing is done in the middle of the shift, to remove all the powder-smoke and gases by the time the miners have to commence work again in the afternoon. Considerable relief has been offered in some mines by the sinking of additional ventilating shafts, in others the cleaning up of airways and splitting the air current has been of benefit; yet results have not been entirely satisfactory.

It has been suggested that the best way out of the difficulty would be to stop firing at noon. That would be an effective remedy, and would work all right in mines where the coal is of fair thickness and blasts well; but unfortunately nature has failed to provide such favorable conditions in all mines. I did not feel justified, except in aggravated cases, to apply this remedy, because in a large number of mines in this district an action of that kind would mean a reduction in the earnings of the miners working in them, as well as a reduction in the profits of the operator by reason of a decreased daily tonnage. I favor continuing the pracrice of firing twice a day, if it can be done without injury to the miners' health. I believe it is to the advantage of the miner and may in some respects promote his safety. It appears to me that it would be of decided benefit to the operators of mines, not especially favored by nature, to remove the objection to twice-a-day firing by providing means of ventilation of such power and capacity that the mines can be practically cleared of smoke by the time the miners are ready to start to work again after dinner.

Below will be found the tables giving the amount of coal produced in each county of the district in the last two years, the number of men employed, their earnings, etc. In this connection I wish to express my appreciation of the promptness of the operators in forwarding to this office their yearly reports on which these tables are based. Every mine that produced more than 8,000 tons of coal last year has reported, and of the smaller mines nearly ninety per cent have sent in their reports.

TABLE No. 1.

Showing the number of mines, output of coal, number of miners and other employes, etc., in District No. 2 for the year ending June 30, 1900.

COUNTY.	Number of mines.	Tons of coal of all grades produced.	Number of miners employed.	Gross earnings of miners.	Number of other employes.	Earnings of said employes.
Mahaska	39	1,235,933	1,578	$ 788,249	758	$406,365
Keokuk	18	299,692	435	198,210	171	87,752
Marion	28	203,568	338	148,851	171	68,899
Lucas	8	133,196	191	100,529	122	46,988
Warren	8	21,805	58	20,053	16	4,450
Scott	8	19,650	72	22,597	11	2,770
Adams	18	16,370	113	18,507	20	3,553
Total	127	1,930,214	2,785	$1,296,996	1,269	$620,777

TABLE No. 2.

Showing the number of mines, output of coal, number of miners and other employes etc., in District No. 2 for the year ending June 30, 1901.

COUNTIES.	Number of mines.	Tons of coal of all grades produc d.	Number of miners employed.	Gross earnings of miners.	Number of other employes.	Earnings of said employes.
Mahaska	39	1,072,493	1,459	$ 777,742	728	$ 403,264
Keokuk	17	261,798	381	173,953	158	81,305
Lucas	7	249,803	284	174,659	166	95,195
Marion	28	228,607	368	156,332	141	67,950
Scott	10	22,469	76	24,395	12	3,868
Adams	17	18,381	111	24,859	16	3,115
Warren	10	16,572	55	15,255	14	3,505
Total	128	1,870,123	2,734	$ 1,347,195	1,235	$ 658,202

TABLE No. 3.

Increase or decrease for the year ending June 30, 1901, as compared with the year ending June 30, 1900.

COUNTY.	NUMBER OF MINES.		TONS OF COAL OF ALL GRADES PRODUCED.		NUMBER OF MINERS EMPLOYED.		GROSS EARNINGS OF MINES.		NUMBER OF OTHER EMPLOYES		EARNINGS OF SAID EMPLOYES.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
Mahaska	....		.....	163,440	..	119	.....	$ 10,507	....	30	.....	$ 3,101
Keokuk	....	1	.....	37,894	...	54	.....	24,257	....	13	.....	6,444
Lucas		1	116,607	.....	93	.....	$ 74,130	.....	44	....	$ 48,207	...
Marion	....		25,039	.....	30	.....	7,481	.....	...	30	.....	949
Scott	2		2,819	.....	4	.....	1,798	.	1	....	1,098	....
Adams	....	1	2,011	.....		2	6,352	.....	...	4	.....	438
Warren	2	...	.....	5,233		3	....	4,798	.	2	.....	945
Total	1		.....	60,091	....	51	$ 50,199	.....		34	$ 37,425	

The last table is a very interesting one, and should prove especially gratifying to the representatives of the miners, who met the operators a year ago to adjust the scale for the year ending March 31, 1901. The mines were run an average of fifteen days less during the year ending June 30, 1901, than in the year preceding. In the last year the tonnage in the counties of Mahaska, Keokuk, Lucas and Marion fell off 59,688 tons, and fifty less miners were employed. Yet, notwithstanding this, the gross earnings of the miners in these counties increased during last year $46,847 over their earnings of the year before. The decrease in tonnage in Mahaska county was 163,440 tons and the decrease in miners' earnings only $10,507, while Keokuk county's output decreased 37,894 tons, and the miners' earnings $24,257. It appears at the first glance that the showing from these two counties is very disproportionate, but investigation shows that there is nothing wrong with it. Very little has been paid by the operators of Keokuk county for deficient work, because there was little of that kind of work to do; the expense for lifting bottom or brushing has been very light, and in addition about one-half the coal produced in the last year in the county has been mined without a cent of expense for narrow work or room turning on account of the exceptionally large amount of pillar work done. The case has been different in Mahaska county. Considerable low coal was worked last year at an advance per ton over the scale price; the expense of taking up bottom and taking down top to make height has been very great, and there was a great deal of deficient work to pay for. The yardage and room turning account was proportionately very much larger than the same account in Keokuk county. The figures for Lucas and Marion county also need explanation. While Marion county's increase in tonnage last year was more than one-fifth that of Lucas county, the Marion county miners' earnings reached only one-tenth the increase gained by the miners of Lucas county. The number of small mines in Marion county is considerable, and they are run on an as inexpensive scale as possible. Some of them are not worked by union labor, and the prices paid in these mines are generally

below the scale, In Lucas county, large mines have been recently opened. Their development has been rapidly pushed, and the great expense incurred for narrow work, room turning, deficiencies, and dead work offers a ready and sufficient solution why there has been such difference in the increase of the miners' earnings in the two counties. The number of other employes, not miners, in Mahaska, Marion, Lucas and Keokuk counties was twenty-nine less in the last year than it was in the year before. Still, the 1193 employes earned $37,710 more in the last year than the 1222 employes earned in the preceding one. The principal mines in the district worked about 260 days last year. Now, if the agreement of 1900 increased the daily wage of each of these employes 12 cents for each day worked in the twelve months ending June 30, 1901, and I believe it increased it fully that much over the daily wage paid each during the year ending June 30, 1900, we have a gain of earnings on that score of $37,221, a sum almost identical with the one given in the table.

MAHASKA COUNTY.

Mahaska county still maintains its position at the head of the list of the coal-producing counties of Iowa. For more than twenty-five years it has produced more coal each year than any other county in the state; but it begins to look as if its supremacy in this respect is about ended. The extraordinary development of mines in Monroe county in the last two years has far outranked development work in Mahaska county; and, unless something is done quickly to offset the advantage gained by its neighbor on the south, the indications are that Mahaska county will have to be satisfied with second place.

The extension of the Chicago and North-Western Railway across the Des Moines river will prove of great advantage to the mining industry of Mahaska county. The extension has made available valuable coal territory, that promises to yield more coal than has been produced in Mahaska county since the beginning of coal mining in it. At present only one mine, shipping coal over the new road, is operated in the county on the west side of the river; but a great deal of prospecting has been done in the new field, and other mines will probably be opened in the near future. West of Oskaloosa and south of the now abandoned No. 4 mine of the American Coal Company, a new mine has been recently opened by the Garfield Coal Company. The coal in this mine, so far as it has been developed, is of fair thickness, averaging more than five feet, and the mine promises to become one of the large producers of the county. Several fair-sized basins of coal have been located southeast of the Garfield property, and their development is only a question of time. I am informed that a new mine will be opened southeast of Colon, with shipping facilities over the Chicago and North-Western Railroad. Prospecting is going on in different parts of the county, but results at this time are not definite enough to base predictions on as to whether the tracts prospected contain coal enough to warrant their development.

Of the mines now in operation in the county having railroad connections, eight are located on the Chicago and North-Western Railroad, eight on the Chicago, Rock Island and Pacific, and one on the Iowa Central Railroad.

Mechanical underground haulage is largely in use. Two endless ropes, seven tail-ropes, and one electric motor convey the coal to the shaft bottoms, and three single ropes in slopes pull it to the tipples. The electric motor in use in the Pekay mine seems to do the work satisfactorily, and there is no doubt that this kind of haulage is a success, if conditions are favorable. It appears to be not economical in mines where a solid roadbed cannot be made and maintained at a moderate cost, and where many and variable grades have to be run over.

The provisions made during the last two years to insure the safety of those employed in the mines of the county have been satisfactory. Ten air and escape shafts have been sunk, and other commendable improvements have been made to render the mines as safe as possible. Of twenty-seven fatal and non-fatal accidents occurring in the county in the last two years, none was caused through the absence or faulty construction of safety appliances.

All the large mines and some of the smaller ones are ventilated by fans. Nineteen are now in use in the county; eighteen of these are run by steam and one by electricity. These fans provide more than 375,000 cubic feet of air every minute to ventilate the mines. More than the minimum air volume per minute required by law enters each of these mines. In some of them, however, the air-current is not strong enough to remove readily the great volume of powder-smoke due to the firing of many shots at the same time, and the miners working in them are therefore compelled to labor, for a time at least, in an atmosphere that is decidedly injurious to health. I have spoken of this matter before, and I again urge the operators, if the practice of twice-a-day firing is to continue in these mines, to increase by some adequate method the volume of air going through them immediately after firing time.

KEOKUK COUNTY.

For seven years Keokuk county has ranked fifth among the coal counties of Iowa, Mahaska, Polk, Monroe and Appanoose have stood ahead of it in the number of tons of coal produced annually. It is not probable that the county can maintain that position in the future. The mine that has been the best producer in the last few years, the Crescent No. 4, is about to be abandoned, and the Columbian mine, almost equal to the Crescent, cannot last much longer, unless the coal deposits that can be reached from this mine are larger than the prospect holes put down in the adjacent territory seem to indicate. So far there have been no new mines developed of sufficient capacity to make up for the falling off in the county's coal output that will be caused by the giving out of these two mines. While some take a rather gloomy view of the situation, there is no reason to fear that the coal wealth of the county is about exhausted. It is true that the workable coal area is small, and is confined almost altogether to the northwestern part of the county; it is also true that a considerable portion of this area has been worked out; yet it is very probable that good coal fields can still be found if thorough and systematic prospecting is resorted to to locate them.

Five mines have shipping facilities over the Chicago & North-Western Railroad, and two ship over the Burlington, Cedar Rapids & Northern.

New mines have recently been opened by the Lambert Bros., the Margaret Coal company, and Bakers Bros. They are located in the vicinity of What Cheer.

The mines now in operation are not very extensive, and on that account mechanical haulage is not found in any of them, the Blatt mine excepted. In that mine single rope haulage is in use.

The mines in the county, as far as safety is concerned, compare favorably with any in the district. Four air and escape shafts have been sunk during the last two years. Two fatal accidents occurred, and four non-fatal accidents were reported. Two hundred eighty thousand, seven hundred forty-five tons of coal were mined for each fatal accident.

The fair thickness of the seam, and the consequent roomy condition of the airways, ventilating machinery of ample power, together with the general limited extent of the mine workings, make the problem of ventilation comparatively easy. In the mines where stoppings were properly constructed and looked after, and ordinary care was taken to direct the air current to the working faces, little or no complaint on account of insufficient ventilation was made by the miners employed in them. Neglect on the part of the mine foremen to make good use of the air volume at his disposal brought just complaints from the men. In such cases speedy improvement of conditions was asked for, and generally obtained to a satisfactory extent.

LUCAS COUNTY.

In my report of the first district, made in 1893, the following was said about the condition of the mining business in Lucas county: "Once the second coal producing county in the state, with an output of over a half million tons per annum, it has now taken a position almost at the foot of the list. At present only two small mines are struggling along to keep the name of Lucas county from being wiped out altogether from the roster of Iowa's coal-producing counties. There is no question that coal in paying quantity can be found here, but the reason for not developing it seems to be that the expense account to reach it would show up rather heavy. Be that as it may, the time will come when the coal fields of Lucas county will again give employment to hundreds of men." The time has come, and I am pleased that my predictions have proved to be correct. From twentieth in rank among the coal producing counties of the state in 1893, Lucas county now occupies seventh place, and the indications are that during the next two years it will move still higher in the list. This change from a practically dormant state to one of great activity has been effected in the last two years, and is due to the opening of mines by the Whitebreast Fuel Company, of Illinois, and the Big Hill Coal Company, in the western part of the county near the towns of Lucas and Cleveland, not far from the old coal territory that has yielded millions of tons of coal, and where mining was carried on from 1876 to 1891. Cleveland No. 4 mine, worked by the Whitebreast Fuel Company of Illinois, has probably produced more coal during the last year than any other mine in the state. The best day's output of this mine was 1,058 tons of mine run, and it was handled in seven and one-half hours.

More than 300 men are employed in and about this mine. The Big Hill

Coal Company's mine at Lucas has been worked so far under great disadvantage, due mainly to the large amount of water that fonnd its way into the mine through a porous sandstone that immediately overlies the coal. In the south and southwest portions of the mine, however, the inflow of water has apparently stopped, and if this condition continues the mine's development will be more rapid and a corresponding increase in its output will result. The Chicago, Burlington & Quincy railroad furnishes shipping facilities for these two mines, and also for the mine operated by the Lucas & Cleveland Coal Company. A new mine is about to be opened, three miles north of Chariton, by the Inland Coal Company.

The principal coal seam worked in the county lies at considerable depth below the surface. North of Chariton the new shaft will reach the coal in about 225 feet; the Big Hill Coal Company's shaft is 274 feet deep; and the shaft of the Cleveland No. 4 mine has a depth of 321 feet. The latter is the deepest shaft in the state at present. The coal is of good quality, and will average four and one-half feet in thickness. The Lucas and Cleveland Coal Company works a seam belonging to the middle coal measures; the coal is two feet thick and is worked long wall.

The mines were operated 260 days during the last year.

Six fatal and six non-fatal accidents occurred in the mines of Lucas county in the last two years. Only 63,833 tons of coal were produced for each fatal accident. This is an extremely bad showing, and I hope that the miners and operators will use the utmost care to prevent, as far as possible, the occurrence of fatal and serious accidents in the future. It seems that good work in this direction has been done already. Since the explosion in No 4, on January 5, 1901, up to this time (August 15th), only three accidents, causing slight injuries, have occurred.

The ventilation of some parts of the mines has at times been insufficient, but the deficiency was caused by adverse circumstances rather than through willful neglect on the part of the mine officials. Fan ventilation has recently been substituted for ventilation by steam jet by the Lucas and Cleveland Coal Company, and efforts are being made in the other mines to put them in as good sanitary condition as possible.

MARION COUNTY.

Marion county is very rich in coal deposits, and we find it stated in the geological report of the county, issued this year, that "almost the entire county is underlain by coal. Yet," the report says further, "notwithstanding these abundant deposits, mining has not been carried on nearly so extensively as in some of the adjoining counties, particularly Mahaska. The reason for this non-development of the mining industry in this region has been neither the character of the coal nor the thickness of the seams, but the lack of railway facilities for the transportation of the product." It is true that railroad facilities to reach the main coal basins of the county have not yet been provided, but there has existed so far seemingly little necessity to tap them. Furthermore, there is yet an abundance of undeveloped coal within easy reach of the railroads. In my opinion, the principal reason why developments have been somewhat slow has not been due so much to the

lack of railroad facilities, but rather to the lack of available markets. Taking everything into consideration, Marion county has not done so badly recently in developing its mineral resources. Since 1898 the coal production of the county has increased 71 per cent, and there is every indication that the healthy growth of the coal business will continue.

Three railroads, the Chicago, Burlington & Quincy, the Wabash, and the Chicago, Rock Island & Pacific furnish transportation to get the coal to market.

The two mines having the largest output at present are located on the Wabash railroad, one is the mine operated by the Wild Rose Coal & Mining Company at Morgan Valley, and the other is No. 1 mine at Hamilton, owned by the Donley Coal Company. Four mines have switches from the Chicago, Burlington & Quincy railroad, and one mine at Otley has track connection with the Des Moines line of the Rock Island.

About two years ago a shaft was sunk by the O. K. Coal Company five miles west of Bussey, and on the north side of Cedar Creek, into a vein of coal between eight and nine feet in thickness. The mine was at the time developed to some extent, but for more than a year and a half it has been idle. Owing to the considerable distance of the mine from the railroads, the coal could not be hauled by wagons, loaded on the cars, and marketed at a profit. This difficulty has, however, been overcome. A switch about six miles in length starting near the town of Tracey, and running along the north bank of Cedar Creek, now connects the mine with the Wabash railroad. The prospecting record of the field, in which the mine is located, indicates that its yield should be very large. Another mine is about to be opened on the Knoxville branch of the Chicago, Rock Island & Pacific railroad. It will be located north of Flagler, and be operated by the American Coal Company. The vein is of good thickness and easily reached and the mine promises to become one of the large mines of the district.

The amount of coal hauled by wagons from the smaller mines near the towns of Hamilton, Flagler, and Otley, and loaded on the cars, has been considerable. About 27,000 tons were handled in this way last year.

It may confidently be expected that the next year's output of coal in the county will show a material increase over the output of the year just ended.

Only four of the county's twenty-eight mines are ventilated by fans. Small furnaces are used in the others to furnish ventilation. In the winter little difficulty is experienced in airing them satisfactorily, and as there is little work done in them in the summer and the number of men employed in them very small, the decreased efficiency of such ventilation during the warmer months does comparatively little harm. There is an evident desire on the part of the operators of small mines to improve them, make them safer, and better their sanitary condition.

SCOTT COUNTY.

Scott county has produced coal for a long number of years, but, while its total output from the time mining first commenced in the county up to the present time represents a very respectable tonnage, the production for each year has never been large. In the last two years mining has been

carried on more actively and extensively, resulting in a marked increase of the output, the coal production for the two years amounting to 42,119 tons.

The coal averages about three feet in thickness. It is worked on the room and pillar plan, and the miners receive from a dollar to a dollar and twelve and a half cents a ton for mining the coal and delivering it at the shaft bottom. In the mines west of Buffalo the coal is blasted from the solid; but in the mines around Jamestown no powder is used. None of the mines are located near a railroad, consequently little coal is shipped. Jamestown is the center of the mining industry, and the principal mines of the county are located near that place.

At only one mine steam power is found to hoist the coal, horses being used for that purpose at the others. Ventilation is maintained by small furnaces in all the mines, except in the mine operated by Buchmeier & Carlin which has fan ventilation. The mines are cheaply equipped, yet the equipments are adequate under the circumstances to insure reasonable safety to the men working in them. No accident of a serious nature has occurred in the mines of Scott county during the last two years.

ADAMS COUNTY.

The mines in Adams county produced in the last two years 34,751 tons of coal, and about 175 men found employment in work in and around the mines and in hauling the coal to market. The mines are all small, none have shipping facilities, and they are depending entirely on the local markets. As there are no manufacturing or other industrial establishments to supply, and as the demand for coal for domestic use is very light in the summer, nearly all the mines are idle during that season of the year. In the winter, however, especially if the roads are in good condition, the demand generally exceeds the supply.

The coal seam, which averages about sixteen inches in thickness, is the thinnest worked in the district. It is reached by shallow shafts and is worked long wall. The miners receive from five to six cents a bushel for mining and delivering the coal at the shaft bottom. Most of the county's coal output comes from the mines in the vicinity of Carbon. Mines are also worked near Eureka, Briscoe, and Hoyt.

Mine ventilation is produced by small furnaces, and in cold weather natural ventilation is generally sufficient to air the mines satisfactorily. Owing to the thinness of the seam, the method of working it, and the good roof, accidents of a serious nature are very rare, and none has occurred during the last two years.

WARREN COUNTY.

Warren county contains considerable coal, and its yearly output could be largely increased, were it not for the fact that railroad facilities to market the coal profitably have been lacking so far. There is only one small mine in the county that can load its product on the cars without hauling it by wagons. The larger mines are located at and near Somerset. Two different

seams are worked in this vicinity. The upper seam is about three feet thick, and is worked long wall, the lower seam is somewhat thicker, and is worked on the room and pillar plan. The mines produced 38,377 tons of coal in the last two years, and about seventy-five men were employed. Small mines have been opened in different parts of the county to supply the local demand for coal. They employ from two to six men each in the winter, but are generally closed down during the summer.

Most mines depend on natural ventilation, a few are aired by small furnaces, and one mine will be ventilated by a fan run by a gasoline engine.

One serious accident occurred in the mines of the county during the last two years.

MAHASKA COUNTY.

Mines in operation in District No. 2, their location, etc.

CORPORATION, FIRM OR OPERATOR.	Mine number.	LOCATION OF MINE.	Railroad connections, if any.	Kind of opening.	PLAN OF WORKING MINE.	Means of ventilation.	Kind of hoist.	KIND OF HAULAGE.
Consolidation Coal Co	9	4 miles east of Eddyville	C. & N. W.	Shaft	Room and pillar	Fans	Steam	Endless rope and mule.
Lost Creek Fuel Co	1	Lost Creek	C. & N W.	Shaft	Room and pillar	Fan	Steam	Mule.
Lost Creek Fuel Co	2	½ mile south of Lost Creek	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule.
F. D. Coryell & Son	....	3½ miles east of Eddyville	....	Slope	Room and pillar	Furnace	Horse	
Regal Coal Co	....	¾ mile south of Pekay	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule.
Whitebreast Fuel Co., of Ill.	28	Pekay	Iowa Central	Shaft	Room and pillar	Fan	Steam	Tail rope, electric moter, mule.
Kennebec Coal Co	....	1 mile south of Muchakinock	....	Slope	Room and pillar	Fan	....	Rope and mule.
Klondike Coal Co	....	5 miles south of Okkaloosa	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Tail rope, mule.
Iowa Fuel Co	....	Colon	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule.
J. Baxter	....	Morrisville	....	Shaft	Room and pillar	Furnace	Horse	
Smith Bros	....	4¾ miles east of Oskaloosa	....	Shaft	Room and pillar	Natural	Horse	Mule.
Atwood Coal Co	....	2 miles north of Atwood	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule.
Barrowman & Oakley	....	North of Carbonado	....	Slope	Room and pillar	Furnace	....	Mule.
G. Clough	....	North of Carbonado	....	Slope	Room and pillar	Furnace	....	Mule.
F. Schultz	....	1 mile north of Oskaloosa	....	Slope	Room and pillar	Furnace	....	Mule.
Evans Coal Co	....	4½ miles NE of New Sharon	....	Slope	Room and pillar	Fan	....	Rope, mule.
W. F. Williams	3	3¾ miles NE of New Sharon	....	Slope	Room and pillar	Furnace	....	Mule.
Geo. Cook	....	West of Oskaloosa	....	Shaft	Room and pillar	Furnace	Horse	Mule.
Oskaloosa Fuel Co	....	1½ mile west of Oskaloosa	....	Shaft	Room and pillar	Fan	Steam	Mule.
M. Carey	...	4 miles NW of Rose Hill	....	Shaft	Room and pillar	Furnace	Horse	Mule.
Little-Hoover Coal Co		Sw of Oskaloosa	C., R. I. & P.	Shaft	Room and pillar	Fan	Steam	Mule.
Sowden Coal Co.	....	N of Beacon	....	Shaft	Room and pillar	Furnace	Horse	Mule.
Frey Bros		1¼ miles SE of Leighton	....	Shaft	Room and pillar	Furnace	Horse	Mule.
Wm. Patterson & Son		1½ miles SE of Leighton	....	Shaft	Room and pillar	Furnace	Horse	Mule.
American Coal Co.	5	2 miles W of Evans	C., R. I. & P.	Shaft	Room and pillar	Fan	Steam	Tail rope, mule.
Richard Bros	1	¾ miles W of Evans	C., R. I. & P.	Slope	Room and pillar	Fan	....	Rope, mule.
Garfield Coal Co	2	1½ miles W of Evans	C., R. I. & P.	Shaft	Room and pillar	Fan	Steam	Mule.
Garfield Coal Co	1	Nw of Beacon	C., R. I. & P.	Slope	Room and pillar	Fan	....	Tail-rope, mule.
Oskaloosa Coal and Mining Co	2	1 mile W of Beacon	C., R. I. & P.	Shaft	Room and pillar	Fan	Steam	Tail-rope, mule.
Oskaloosa Coal and Mining Co	3	2 miles S of Beacon	C., R. I. & P	Shaft	Room and pillar	Fan	Steam	Tail-rope, mule.
Mahaska Coal and Mining Co.	4	3 miles S of Beacon	C., R. I. & P.	Slope	Room and pillar	Fan	....	Tail-rope, mule.
Eveland Coal Co.	....	Eveland	C. & N.-W.	Shaft	Room and pillar	Fan	Steam	Mule.

KEOKUK COUNTY.

CORPORATION, FIRM OR OPERATOR	Mine No.	LOCATION OF MINE.	RAILROAD CONNECTION, IF ANY.	Kind of Open'g.	PLAN OF WORKING MINE.	Means of Ventilation.	Kind of Hoist.	KIND OF HAULAGE.
M. Fisher		S of Delta		Shaft	Room and pillar	Furnace	Horse	
R. W. Allsup		3 miles N of Delta		Shaft	Room and pillar	Furnace	Horse	
Bell & Teeters		3 miles N of Delta		Shaft	Room and pillar	Furnace	Horse	
Volunteer Coal Co.		1¾ miles NE What Cheer B	C.R. & N.	Shaft	Room and pillar	Fan	Steam	Mule.
Margaret Coal Co.		1 mile N of What Cheer	B. C.R. & N.	Shaft	Room and pillar	Fan	Steam	Mule
T. Armstrong		E of What Cheer		Shaft	Room and pillar	Furna e	Horse	
T. Mason		E of What Cheer		Shaft	Room and pillar	Furnace	Horse	
Hugh Murray		N of What Cheer		Shaft	Room and pillar	Furnace	Horse	
Wm. Platt		N W. of What Cheer		Slope	Room and pillar	Furnace		Rope, mule
Grudings Bros.		S of What Cheer		Shaft	Room and pillar	Furnace	Horse	Mule
D. Peacock		S of What Cheer		Shaft	Room and pillar	Furnace	Horse	
Crescent Coal Co	4	2¾ miles NW of What Cheer	C. & N. W.	Shaft	Room and pillar	Fan.	Steam	Mule
Hommerin & Son		2 miles NW of What Cheer.	C. & N. W.	Shaft	Room and pillar	Jet	Steam	Mule
Baker Bros		2¼ miles NW of What Cheer	C. & N. W.	Shaft	Room and pillar			(New mine)
Lambert Bros.		1¾ miles W of What Cheer.	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule
Columbian Coal Co	3	2 miles W of What Cheer	C. & N. W.	Shaft	Room and pillar	Fan	Steam	Mule

LUCAS COUNTY.

Whitebreast Fuel Co. of Ill.	4	Cleveland	C. B. & Q.	Shaft	Room and pillar	Fan.	Steam	Mule
Big Hill Coal Co.		Lucas.	C. B. & Q.	Shaft	Room and pillar	Fan	Steam	Mule
Lucas & Cleveland Coal Co.		1 mile E of Lucas.	C. B. & Q.	Shaft	Longwall	Fan.	Horse	Mule

MARION COUNTY.

Buwalda Bros		2 miles NW of Pella		Shaft	Room and pillar	Jet	Steam	
J. R. Dieleman		1½ miles NW of Pella		Shaft	Room and pillar	Jet	Steam	
Forest Fuel Co		1½ miles west of Otley.	C. R. I. & P.	Slope	Room and pillar	Furnace		Rope, mule
McCroskey & Co.		W of Otley.		Slope	Room and pillar	Furnace		Rope, mule
Wm. Pace & Co.		W of Otley.		Slope	Room and pillar	Furnace		Mule.
Roberts & Young		W of Otley		Slope	Room and pillar	Furnace		Mule.

Youkon Coal Co.	....	W of Otley		Slope	Room and pillar	Furnace		Mule.
Wild Rose Coal and M. Co.	....	Morgan Valley	Wabash	Shaft	Room and pillar	Fan	Steam	Rope, mule.
Dunreath Coal Co	....	Dunreath		Slope	Room and pillar	Furnace		Mule.
H. Booth	....	4¼ miles SE of Knoxville		Slope	Room and pillar	Furnace		Mule.
J. T. Hayes	....	4½ miles SE of Knoxville		Slope	Room and pillar	Furnace		Mule.
Hawkeye Coal Co	....	1½ miles W of Flagler	C. B. & Q.	Shaft	Room and pillar	Fan	Steam	Mule.
S. R. Rollings	....	Flagler	C. B. & Q.	Slope	Room and pillar	Furnace		Mule.
O. K. Coal Co.	5	5 miles W of Bussey	Wabash	Shaft	Room and pillar	Fan	Steam	Mule.
O. K. Coal Co	6	1 mile W of Bussey	C. B. & Q.	Slope	Room and pillar	Furnace		Rope, mule.
Hamilton Coal Co.	3	2 miles NW of Hamilton	C. B. & Q.	Shaft	Room and pillar	Furnace	Steam	Mule.
Ennis & Stillwell	....	W of Hamilton		Shaft	Room and pillar	Furnace	Horse	Mule.
George Davis	....	NW of Hamilton		Shaft	Room and pillar	Furnace	Horse	
Donley Coal Co.	1	Hamilton	Wabash	Shaft	Room and pillar	Fan	Steam	Tail-rope, mule.
Donley Coal Co	2	3 miles NW of Hamilton		Slope	Room and pillar	Furnace		Rope, mule.
Donley Coal Co.	3	3 miles NW of Hamilton		Slope	Room and pillar	Furnace		Mule.

SCOTT COUNTY.

A. McDonald	....	2½ miles NW of Buffalo		Shaft	Room and pillar	Furnace	Horse	Pushers handle the cars.
Ed. McCollough	....	N of Buffalo		Shaft	Room and pillar	Furnace	Horse	
Metzger & Kaucher	....	Jamestown		Shaft	Room and pillar	Furnace	Horse	
L. Long	....	Jamestown		Shaft	Room and pillar	Furnace	Horse	
Chas. Sass	....	Jamestown		Shaft	Room and pillar	Furnace	Horse	
E. T. Langwith	....	Jamestown		Shaft	Room and pillar	Furnace	Horse	
Buchmeier & Carlin		Jamestown		Shaft	Room and pillar	Fan	Steam	
Theo. Krantz	....	Two miles west of Buffalo		Shaft	Room and pillar	Furnace	Horse	
Thos. Webster	....	Two miles west of Buffalo		Shaft	Room and pillar	Furnace	Horse	

ADAMS COUNTY.

J. M. Henton	....	Eureka		Shaft	Longwall	Furnace	Horse	The miners push and cage their own coal.
Ed. Amdor	..	1¼ miles NW of Eureka		Shaft	Longwall	Furnace	Horse	
W. R. Miller		Briscoe		Shaft	Longwall	Furnace	Horse	
C. W. Powley	..	Briscoe		Shaft	Longwall	Furnace	Horse	
N. S. Wheelen	..	Carbon		Shaft	Longwall	Furnace	Horse	
Rice & Collins	....	Carbon		Shaft	Longwall	Furnace	Horse	
John Ruth		Carban		Shaft	Longwall	Furnace	Horse	
Rees & Perks	....	Carbon		Shaft	Longwall	Furnace	Horse	
E. McKee	..	Carbon		Shaft	Longwall	Furnace	Horse	
M. Jones	....	Carbon		Suaft	Longwall	Furnace	Horse	
T. Gebbie	....	Carbon		Shaft	Longwall	Furnace	Horse	
S. O. Trowbridge	..	Carbon		Shaft	Longwall	Furnace	Horse	
J. F. Wilds	....	Carbon		Shaft	Longwall	Furnace	Horse	
R. Hathaway	....	Hoyt		Shaft	Longwall	Furnace	Horse	
Day Bros	....	Hoyt		Shaft	Longwall	Furnace	Horse	
Jas. Spargur	....	Hoyt		Shaft	Longwall	Furnace	Horse	

WARREN COUNTY.

CORPORATION, FIRM OR OPERATOR.	Mine number.	LOCATION OF MINE.	Railroad connections, if any.	Kind of opening.	PLAN OF WORKING MINE.	Means of ventilation.	Kind of hoist.	KIND OF HAULAGE.
Wishman & Cumming	....	3 miles north of Somerset	.....	Shaft	Room and pillar	Furnace	Horse	In some of the mines pushers are employed, in others the miners push and cage the coal.
Huff & Baber	....	3 miles NE of Somerset	.....	Shaft	Room and pillar	Furnace	Horse	
Shackley & Bennum	....	2 miles east of Somerset	.....	Shaft	Longwall	Furnace	Horse	
Welch Bros	....	2½ miles east of Somerset	.....	Shaft	Longwall	Furnace	Horse	
Somerset Coal Co	....	Somerset	C., R. I. & P.	Shaft	Room and pillar	Furnace	Horse	
King & Turnipseed	..	Somerset	.....	Shaft	Room and pillar	Furnace	Horse	
N. D. Bales		Milo	.....	Shaft	Room and pillar	Furnace	Horse	
S. C. Bryant	....	Milo	.....	Shaft	Room and pillar	Furnace	Horse	
J. A. Williams	..	Milo	.....	Shaft	Room and pillar	Furnace	Horse	
Ed. Rowley		Liberty Center	.....	Shaft	Room and pillar	Furnace	Horse	

MINES OPENED AND ABANDONED IN THE LAST TWO YEARS.

MASHASKA COUNTY.

MINES OPENED.	MINES ABANDONED.
American Coal company No. 5.	American Coal company No. 2.
Regal Coal company.	American Coal company No. 4.
Smith Bros. No. 2.	Cardiff Coal company.
Little-Hoover Coal company.	Consolidation Coal company No. 7.
Atwood Coal coal company No. 2.	Consolidation Coal company No. 8.
Kennebec Coal company	Atwood Coal company No. 1.
Eveland Coal company.	Smith Bros. No. 1.
Lost Creek Fuel company No. 2.	D. Howarth.

MARION COUNTY.

O. K. Coal company No. 5.	O. K. Coal company No. 4.
Forest Fuel company.	J. H. Reddish.
J. R. Dieleman.	
McLaughlin & Payne.	

KEOKUK COUNTY.

Volunteer Coal company.	Klondike Coal company.
Lambert Bros.	J. M. Olive.
Margaret Coal company.	Thomas Bros.

SCOTT COUNTY.

Buchmeier & Carlin No. 2.	Clintner & Hanlon.
Thos. Webster.	Blackwell & Fridley.
L. Long.	Buchmeier & Carlin No. 1.
Chas. Sass.	
E. T. Langwith	

WARREN COUNTY.

Welch Bros. No. 2.	
King & Turnipseed	

FATAL ACCIDENTS.

Table showing Fatal Accidents in District No. 2, for the two years ending June 30, 1901.

DATE.	NAME OF DECEASED.	OCCUPATION.	CAUSE OF DEATH.	MINE WHERE ACCDT. OCCURRED.	COUNTY.
August 7, 1899	Art Geddes	Miner	Fall of slate	American No. 2	Mahaska.
August 15, 1899	Jas. Kalonda	Miner	Flying coal from shot	Crescent No 4	Keokuk.
October 21, 1899	Wm H. Smith	Miner	Fall of slate	Garfield	Mahaska.
November 3, 1899	John McKenzie	Weighman	Falling down shaft	Cleveland No. 4	Lucas.
December 22, 1899	Rob Gray	Miner	Fall of slate	Klondike	Keokuk.
January 9, 1900	I. B. Carpenter	Miner	Fall of slate	McCollough's	Lucas.
January 25, 1900	John Evans	Driver	Run over by car	Consilidation No. 8	Mahaska.
February 2, 1900	L. H. McCune	Miner	Flying coal from shot	York No. 1	Marion.
February 27, 1900	Jas. Graham	Miner	Falling down shaft	American No. 5	Mahaska.
June 14, 1900	†A. Anderson	Mine foreman	Run over by tail rope trip	Mahaska C. & M. Co's	Mahaska.
July 18, 1900	W. Dotey	Miner	Fall of slate	Kennebec	Mahaska.
August 3, 1900	P Anisi	Miner	Fall of slate	American No. 5	Mahaska.
August 31, 1900	Wm. Whalley	Miner	Fall of boulder	Big Hill	Lucas.
September 11, 1900	N. Brandt	Weighman	Run over by water car	Forest Fuel Co's.	Marion.
September 27, 1900	N. T. Cooley	Miner	Fall of slate	H Booth's	Marion.
October 17, 1900	L. Guilliman	Driver	Run over by car	Oskaloosa No. 2	Mahaska.
November 3, 1900	P. Sofranko	Driver	Run over by car	Whitebreast No. 28	Mahazka.
November 21, 1900	W. Turner	Miner	Windy shot	Consolidation No. 8	Mahaska.
December 14, 1900	J. D. Williams	Driver	Fall of slate	Lucas and Cleveland	Lucas.
January 5, 1901	Thos. H. Bennett	Shot firer	Explosion	Cleveland No. 4	Lucas.
January 5, 1901	W. A Jenkins	Shot firer	Explosion	Cleveland No. 4	Lucas.
March 11, 1901	R. Gibbons	Driver	Run over by car	Lost Creek No. 2	Mahaska.
May 29, 1901	L. Williams	Miner	Fall of slate	Garfield	Mahaska.

NON-FATAL ACCIDENTS

In District No. 2, for the two years ending June 30, 1901.

DATE OF ACCIDENT	NAME OF INJURED	OCCUPATION	CHARACTER OF INJURY	CAUSE OF INJURY	MINE WHERE ACCIDENT OCCURRED	COUNTY
July 6, 1899	Jos. Sedlock	Miner	Shoulder blade broken	Fall of slate	Klondike	Mahaska.
July 17, 1899	K. W. Maffin	Miner	Head and face bruised	Fall of slate	Oskaloosa Fuel Co.	Mahaska.
January 8, 1900	John Paul	Miner	Face and hands burned	Blown-out shot	Kennebec	Mahaska.
January 8, 1900	John Bell	Miner	Face and hands burned	Blown-out shot	Kennebec	Mahaska.
February 2, 1900	F. Rosprim	Miner	Leg and arm broken	Fall of slate	Cleveland No. 4	Lucas.
February 14, 1900	John Adams	Miner	Rib broken	Fall of slate	Iowa Fuel Co	Mahaska.
March, 1900	Jos. Hoeler	Timberman	Knee injured	Fall of slate	O. K. No 4	Marion.
March 24, 1900	H Wilson	Driver	Both legs broken	Run over by car	Iowa Fuel Co	Mahaska.
April 19, 1900	S. Evans	Trapper	Bruised about hips and abdomen	Caught by car	Whitebreast No. 28	Mahaska.
May ..., 1900	J. O'Connell	Miner	Back injured	Fall of slate	American No. 5	Mahaska.
June 15, 1900	P. Remmark	Miner	Two ribs broken	Fall of slate	Columbian	Keokuk.
June 16, 1900	E. Brown	Miner	Hip dislocated	Fall of coal	Iowa Fuel Co	Mahaska.
June 20, 1900	A. Lehigh	Miner	Back and hips bruised	Fall of slate	T. J. Hayes	Marion.
August 21, 1900	J. Barber	Miner	Leg broken	Run over by car	Cleveland No. 4	Lucas.
August 23, 1900	A. Guilliman	Miner	Leg broken	Fall of coal	Osk.C.& M.Co.No.2	Mahaska.
September 21, 1900	R. Jones	Miner	Knee dislocated	Fall of slate	Forest Fuel Co.	Marion
November 5, 1900	T. Baldwin	Driver	Cut and Bruised	Caught between cars	Crescent	Keokuk.
November 10, 1900	V. Manilla	Miner	Foot crushed	Fall of slate	Donley	Marion
November 12, 1900	A. Thompson	Miner	Foot crushed	Fall of slate	Donley	Marion.
November 21, 1900	J. Kramer	Miner	Hip dislocated	Fall of slate	Garfield	Mahaska.
December 1, 1900	Thos. Hyde	Miner	Face and head injured	Flying coal from shot	Columbian	Keokuk.
December 23, 1900	J Bard	Miner	Leg broken	Fall of coal	Huff & Baber	Warren.
January 6, 1901	L. Anderson	Miner	Hand crushed	Fall of slate	Donley	Marion.
January 18, 1901	B. Whacker	Miner	Leg broken	Fall of slate	Garfield	Mahaska.
February 12, 1901	B. Hartshorn	Miner	Breast bruised, head cut	Fall of slate	Big Hill	Lucas.
March 7, 1901	J Beltel	Cager	Foot injured	Run over by car	Big Hill	Lucas.
March 16, 1901	Jacob Luke	Driver	Left ankle fractured	Run over by car	Cleveland No. 4	Lucas.
March 22, 1901	D. Eagan	Miner	Three fingers crushed	Fall of coal	Crescent	Keokuk.
March —, 1901	D. Hayes	Driver	Arm broken	Caught betw'n car and timber	J. T. Hayes	Marion.
April 10, 1901	S. Parlett	Driver	Toes crushed	Run over by empty car.	Wild Rose	Marion.
April 26, 1901	D. Reigel	Superintendent	Rib broken	Thrown under car	Regal	Mahaska.
May 24, 1901	J Rickabaugh	Miner	External injuries	Struck by flying coal	Forest Fuel Co.	Marion.
May 24, 1901	J. Mooman	Miner	External injuries	Struck by flying coal	Forest Fuel Co.	Marion.
June 5, 1901	A. Pointer	Miner	Arm fractured	Jumping from runaway trip.	Whitebreast No. 28	Mahaska.
June 5, 1901	M. Serottnock	Miner	External injuries	Jumping from runaway trip.	Whitebreast No. 28	Mahaska.
June 5, 1901	J. Stillwell	Miner	Hand crushed	Caught betw'n car and timber.	Donley No. 1.	Marion.
June 11, 1901	J. D. Clark	Foreman	Two ribs broken	Fall of slate	Lucas & Cleveland	Lucas.

Fatal and non-fatal accidents from July 1, 1899 to June 30, 1901, with relation to tonnage and number of employes.

COUNTY.	NUMBER OF ACCIDENTS.		NUMBER OF TONS OF COAL PRODUCED.	TONS OF COAL PRODUCED FOR EACH ACCIDENT.		No. of employes.	NO. EMPLOYES FOR EACH ACCIDENT.	
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal
Mahaska	12	15	2,308,426	192,369	153,500	2.261	188	151
Keokuk	2	4	561,490	280,745	140,373	572	286	143
Lucas	6	6	382,999	63,833	63,833	482	480	80
Marion	3	11	432,175	144,058	39,289	509	170	46
Scott	.....	.....	42,119	.....	.....	85	.....	.....
Adams	.....	.....	34,751	.....	.....	130	.....	.....
Warren	.....	1	38,377	.....	38,377	71	.....	71
Total	23	37	3,800,337	165,232	102,704	4,110	179	111

The number of fatal accidents in the last two years has been exceptionally large. It is a difficult matter to account satisfactorily for this increase, especially where we must concede that fair efforts have been made by the operators in a general way to promote the safe working of their mines, that the mines themselves have not become more dangerous, and that the work performed in them has not been of more hazardous nature than it was two, three, or more years ago. In talking over this feature of accidents with some parties interested in mining, the claim was made, that to some extent the shortening of the working day in the mines from ten to eight hours was responsible for the increase of fatalities. They referred to arguments and statistics used during a recent session of the British Parliament by the opponents of a bill pending before that body to legalize the eight-hour day in all the mines of Great Britain. Their main argument, however, was that the miners, eager to make about the same wage for the shorter workday, that they had made for the longer one, would give too much attention to the getting of the coal and take risks they would not have taken had they more time at their disposal to do their work properly. Taking this argument together with the bare fact that more accidents occurred in this district during the last biennial period and under the eight-hour day than during any like period, when the mines were running ten hours, seemingly makes it appear that there might be considerable truth in their assertion; but an analysis of the accidents themselves and their causes shows that their position is not tenable, and that there is absolutely no proof that the shortening of the workday had anything to do with the increase of accidents.

It may look to the casual observer that a reduction in the hours of labor per day should also result in a reduction of accidents incidental to the performance of such labor. This seems a reasonable concluson, but there are reasons why it may not prove correct as far as the mining business of this district is concerned. The shorter workday does not lessen the dangers incident to travel to and from the working face, and it does not in any manner decrease the danger on account of the blasting; it may necessitate the employment of a greater number of men to get out about the same amount of coal that was produced under the old system, or, if the working force is not increased, the mines may be operated a greater number of days. But, even if it is questionable that the shorter workday has brought with it an increased measure of safety, the proposition to consider it an additional source of danger cannot be regarded seriously and of weight, because it is opposed to reason and to fact.

By placing the fatal accidents of the last two years in groups, we find that six were caused directly or indirectly through the use of powder for blasting purposes, eight occurred on the haulage roads or while the deceased were handling cars, and eight were due to falls of roof near or at the working face.

Three of the deaths due to blasting were caused by carelessness on the part of the men killed, but as to the other three men, who lost their lives on the same account, no charge of carelessness or recklessness can be made. Three of the accidents occurred where the powder was ignited by squibs, and the other three, where fuse was used for that purpose. It is still a much debated question in this district as to whether the squib or fuse is the safer to use. The facts developed in two of the above cases indicate that had the

men used fuse instead of squibs, they would not have lost their lives in the manner they did. In two of the three cases where the powder was ignited by fuse, there is nothing to show that the use of fuse was in any way responsible for the men's death, and in the third case it was foolhardiness and thoughtlessness that caused the accident. The man had been in the habit of firing his shots with fuse, but instead of lighting them at the same time, would first light one, and after that had gone, would go back and light the second. He was warned that such practice was very dangerous, but he persisted. On the day of the accident the fire from the first shot ignited the fuse of the second, and when he arrived at the room face, intending to light it, the charge exploded, and he paid the penalty for his rash act. The main objection to the use of fuse seems to be that it permits the miner to tamp the holes insufficiently and improperly, making blown-out shots more frequent and more dangerous. There is considerable proof that the objection is not an idle one, but it must be admitted that the use of squibs is by no means a sure preventive of blown-out shots and explosions that may result from them, and what greater safety it may afford on this score is more than counterbalanced by the dangers it carries with it in other directions. The squib may be used with profit when only one shot is fired in a place, but if two or more shots are required, I believe the fuse is safer, especially if the same care is taken in tamping the holes that is taken when the squib is used.

Five drivers were killed and four more seriously injured in this district during the last two years. Eighty per cent of the deaths and 75 per cent of the non-fatal accidents were caused by the extremely dangerous practice of riding the tail chain. When one contemplates the daring feats of the driver, as they stand poised on the chain in front of the loaded car, heavily topped with coal, going through the narrow entries at a high rate of speed, where there is not one chance in ten to escape serious injury or death, should the car jump the track or the mule stumble, one may well wonder that the list of killed and injured is not a great deal larger. The practice of riding the tail chain should be stopped or else adequate provisions made to make the driver's work less dangerous.

A considerable number of fatal accidents occurring at the working face was apparently unforseen, and could not well be guarded against, but there were some that might have been avoided, had a little more care been used. It has been truly said that there is little hope for a substantial reduction in fatalities, until a sense of personal care can be instilled into the miner.

SCALES TESTED.

During the last two years twenty-five scale tests were made. Fourteen tests proved the scales to be in good condition and eleven tests showed that adjustment was necessary.

THE MINE FOREMAN LAW.

Since January 1, 1901, the law requiring mine foremen, in mines with an average daily output of twenty-five tons of coal, to have a State certificate

of competency, has been in force. The object of the law is to increase the safety and provide better sanitary conditions in the mines of Iowa by permitting only men to be in charge who have proved themselves qualified, as far as such qualifications may be determined by examination and investigation, to work them intelligently and safely.

In a general way the law has been well received. There are some, however, who do not regard it in a favorable light. Their claim is that the law discriminates against men of practical experience, who have not had the advantage of the technical training needed to enable them to get a certificate, but who are by virtue of their practical knowledge amply able to manage a mine successfully. I think this is a mistake. Practical experience is a broad and indefinite term It may mean much, it may mean little, and it is certain that its value cannot be justly measured by the number of years one has been employed in the mines. No man, who is possessed of the right kind of practical experience and knowledge, such as a mine foreman must necessarily have to perform his work intelligently and successfully, need fear that he will not be able to secure a certificate.

One good feature of the law has already become evident. Its enactment has proved an additional incentive to the ambitious miner to supplement his practical knowledge by study. Increased knowledge means better service I believe it will be to the advantage of the operators to encourage the desire for self-improvement among their men. Some operators have already done this for some time, and the fact that they are still doing it seems evidence enough that they are satisfied with the results obtained.

For various reasons the cost of opening, equipping and working mines in this State is steadily increasing, and fair returns on mining investments depend more than ever on careful and judicious management. Of how much benefit the enactment of the mine foreman law will prove in this connection remains for the future to reveal. In those coal producing States, where similar laws are in force, results in that direction have been satisfactory, and there is no reason to doubt that this will be the case in Iowa.

THE EXPLOSION AT CLEVELAND NO. 4 MINE, AND SOME REMARKS ON "DUST" EXPLOSIONS.

On Saturday, January 5th, 1901, about 4 o'clock P. M. an explosion occurred in No. 4 mine at Cleveland, Ia., in which two shotfirers, T. Bennett and W. A. Jenkins lost their lives. I was immediately notified and on the morning of January 6th, accompanied by a party of miners and the representatives of the company, examined the part of the mine where the explosion had taken place. It was found that the explosion originated at the face of the third East entry on the North side. Three shots had been fired. One of these had worked all right, the second had blown off the "heel" and left about 3½ feet of the hole solid, and the third, which was located in the break-throught just started, had blown the tamping on Friday, been recharged on Saturday, but had again failed to bring down the coal. The face of the entry was about 70 feet ahead of the last break-through. The entry had passed through a small depression, but for the last 25 yards had been going to the rise. The coal at the face was much

charred, indicating that the heat developed must have been exceedingly intense.

At the inquest held in the afteroon of January 6th the following facts were brought out:

Blasting was done once a day at the end of the shift. During firing time nobody was allowed in the mine except the shotfirers, six in number. Four of these fired the shots on the South side and two fired them on the North side. Fuse was used to ignite the powder. The shotfirers also examined all holes as to depth etc., before they were charged and had the right to refuse to fire any shot that, in their judgment, was unsafe.

About 4 o'clock P. M. on Saturday, January 5th, the men working around the top of the shaft were startled by a rumbling noise and the appearance of a large cloud of dust and smoke from the mouth of the shaft. The alarm that an explosion had occurred was at once gsven, and in a few moments a rescuing party composed of D. O. Campbell, Superintendent, John Luke, Mine Foreman, George Wright, W. J. Thomas, and W. J. Davis were ready to enter the mine. In the mean time the fan, which was always run at a low rate of speed during the time of firing, was speeded up. When the rescuing party reached the bottom of the shaft, they were met by the four shotfirers from the South side, who had felt the shock from the explosion and becoming alarmed, had immediately made their way to the shaft. The party re-inforced by the four shotfirers proceeded north through the still strong afterdamp, stopping only to make absolutely necessary repairs, urged on by the hope that they might be in time to find Bennett and Jenkins still alive. When they reached the mouths of the third and fourth East, it became evident that the explosion had occurred in one of these entries. On the West rib of the Main North and opposite these entries were large heaps of dust and fine coal. Turning east along these entries, the stoppings were found in bad shape and the afterdamp very strong. They pushed on, however, and finally found Bennett lying between rooms 9 and 10 on the fourth East entry and Jenkins between rooms 10 and 11. The hope of the rescuers to find these men alive was not to be realized, for both were dead when they reached them. While the bodies and the clothes on them were considerably burned, appearances indicated that it was not the fire, but the initial force of the explosion that had caused their death. Judging from the condition of the bodies death must have been instantaneous. The last inspection of the mine, prior to the explosion, was made October 30th, 1900. Generally speaking the mine was then found to be in fair condition. The ventilation on the north side was good. The mine is the deepest in the State, the depth of the shaft being 321 feet. It was opened in 1899 and is well equipped in every way. Ventilation is maintained by a force fan, 20 feet in diameter, producing ordinarily about 4,500 cubic feet of air per minute. The mine is free from fire damp. Just one month after this explosion, another occurred in the same locality. It originated in Room 13 on the fourth East entry. Two shots were fired in this room and they worked fairly well, although somewhat overpowdered. The two shotfirers, M. Davis and R. Edwards, were found by the rescuing party in Room 10 on the same entry in an unconscious state. They were speedily removed from the damp-ladened atmosphere to fresh air and soon recovered.

Naturally the disastrous ending of the first explosion brought about a

feeling of dread and insecurity on the part of the men employed in No. 4 mine. To remove this feeling, and to devise means to work the mine with greater safety in the future, arrangements were made for a conference between the representatives of the company and a committee chozen by the miners. The parties came together early on Tuesday morning, January 8th, and remained in session all day. They investigated diligently the cause of the explosion, and considered carefully the measures that were suggested as helpful to avert a like disaster hereafter. They agreed to recommend to the miners for adoption such measures, in addition to the already existing rules, as they thought adequate to reduce the danger from shot-firing to a minimum. The miners accepted the recommendations of the conference, and pledged themselves to work in conjunction with the representatives of the company to promote the safe working of the mine in the future. This action did much to remove the feeling of dread and apprehension that was apparent everywhere before the conference was held, and the fact that fourteen volunteers offered their services as shot-firers furnished sufficient evidence to show that confidence had been restored in a remarkable degree. It is true another explosion occurred since in this mine, but that is no proof that the joint action of the representatives of the company and the miners had been barren of satisfactory results.

I believe this conference has been of much practical value. It brought to the men a better realization and understanding of the danger before them, and was the means of uniting them and the representatives of the company in the praiseworthy effort to work intelligently together for better preservation of life and property. The example set by the miners of Cleveland and their employers is certainly worthy to be followed by the miners and operators throughout the state. Co-operation in this direction is a reasonable and feasible way to lessen the number of accidents in the mines; it is the best means of arriving at a better understanding as to their causes and manner of prevention; it divides the responsibility, and will certainly result in the adoption of desirable and beneficial mine regulations and in better and more general observance of them.

Much has been said about the so-called "dust" explosions in non-gaseous mines, and many suggestions have been offered to prevent them, yet notwithstanding all this, explosions of this character are not becoming less frequent and the fearful loss of life caused by them has not been diminished to any appreciable extent. It is a difficult matter to account for this satisfactorily. I believe, however, that the main reason may be found in the fact that the causes of these explosions are not as thoroughly understood as they should be, and that in consequence measures of prevention were adopted in many instances, that proved either faulty or ineffective altogether. I think it can be truly said that all efforts to legislate these explosions out of existance have been ineffective, and that even general laws, intended to regulate shotfiring in mines, have been of doubtful value. On account of the requirement that only the shotfirers be allowed in a mine at firing time, such laws have perhaps prevented great loss of life, but aside from that they have proven so far inadequate to remove the danger itself. The reports from States, having such laws, show that the work of the men doing the shotfiring is seemingly performed under as hazardous conditions as ever and the number of shotfirers killed each year in these States proves the fact. The

trouble is, there has been too much dependence on the law-making power of a legislature to provide greater safety in the mines and too little individual effort on the part of the miner and operator to do for themselves, what they expect others to do for them.

Explosions in non-gaseous mines are said to be caused by the flames of blown-out or overcharged shots extracting and igniting the volatile matter of coal dust, stirred up and suspended in the air within reach of the flame by the concussion from the firing of such shots. Most writers on this subject enlarge especially on the danger of the presence of *dry* coal dust, and the claim is made that blown-out or overcharged shots will prove harmless, if the dust in the vicinity of the shots fired is kept in a damp condition. Some even say that the watering of the roadways alone will effectually remove all danger. Mr. Pamely says on this point: "Roadways should be systematically watered so as to damp the dust, and thus render it harmless." Mr. Hughes makes this statement: "It may now be regarded as established that small amounts of moisture are sufficient to prevent the possibility of coal dust being ignited, and at many collieries the main roads are regularly watered." I believe that the sprinkling of dusty roadways has a beneficial effect, it may afford some protection and it is certainly to be commended as a sanitary measure, but I think the above named gentlemen claim too much in this respect. If their views, that damp roadways are an absolute protection against explosions in non-gaseous mines, are correct, a number of explosions, where this condition existed in a marked degree, should not have occurred. But they occurred, nevertheless, and damp roadways apparently did not even mitigate their severity and destructiveness. I will mention only one instance. Some years ago, the owners of the Vulcan mine at New Castle, Col., realizing that the easy inflamability of the coal dust in that mine required extra precautions, concluded to install an elaborate sprinkling system, that would keep the mine at all times in a thoroughly damp condition. Along the entries pipes were laid, perforated in such manner that the water forced out under considerable pressure in fine sprays, moistened not only the bottom of the entries, but sides and roof as well. The owners did not stop with only keeping the entries damp. At the mouth of each room was a suitable arrangement to attach to the main pipe a hose, long enough to reach the room face, and before a miner was allowed to fire a shot in his room, it had to be thoroughly wetted down. Now, if dampening the dust furnishes an unfailing prevention of explosions, it should have proved its effectiveness in this case. The fact is, the explosion which occurred in this mine, was a most disastrous one. Every man in the mine was killed and the mine itself almost destroyed by its force. The mine at the time of the explosion was of comparatively small extent and well ventilated, between 54,000 and 60,000 cubic feet of air passing into it every minute.

Is it not strange, with such example before us, that of all the works of mining experts, I have looked up on the question of coal dust, there is only one (Coal and Metal Miners Pocketbook, 6th ed.,) that gives warning that "too much faith must not be placed in the use of water by sprinkling for laying the dust." When evolving theories regarding these explosions it seems well to consider carefully all the conditions and details about them as far as they can be established by close investigation. Taking the first

explosion in Cleveland No. 4 as an example, the initial force developed must have been very great, for only a short distance from the starting point of the explosion large rocks, some of them weighing several hundred pounds, had been picked up and carried quite a distance. In the Pekay explosion in 1892 chunks of fire clay were uprooted and thrown against the coal and roof in such manner as to give that part of the mine the appearance of having been whitewashed in spots. The advocates of the sprinkling system claim that their method is safe, because the dampness of the dust will prevent it from rising into the path of the flame. This would perhaps be true if the display of force accompanying or rather preceding the flames could be eliminated, but I submit that, if the force developed can dig up the clay and toss large rocks about, it can surely elevate and separate from each other the damp particles of coal dust and hold them in suspension long enough for the flames to reach them and distill and ignite the gases they contain. It may require a greater initial degree of heat than if the dust was in a dry and finely divided state, and in all probability, if the mine is naturally damp all over, the scope of the explosion may be limited to some extent, yet there seems to be no ground for assurance that an explosion even under these apparently unfavorable conditions may not be as disastrous as one occurring in a perfectly dry mine.

I do not like the term "dust explosion." The term, in my opinion, is confusing, it obscures the real cause, it leads one to attach too much importance to the dust and tends to detract attention from other features that in all probability have a great deal more to do with bringing an explosion about than the dust itself. I have no intention to belittle the influence of the dust in extending and magnifying the force of an explosion already under way, but I believe it is wrong to assign the presence of coal dust as the main cause of it.

There are no data as to the amount of dust that must be ignited to carry on an explosion started by blown-out or overcharged shots. I believe, however, the amount of dust needed is comparatively small, and considerably less than is generally supposed. The claim made by many, that the greater the amount of dust present, the greater the severity of an explosion, appears to be not in keeping with the facts. We know that excessive use of fuel in firing a boiler results in a lower degree of heat in the fire-box and a consequent lessening of the steam producing power. Now, I will not go so far as to say that an excessive supply of coal dust to the advancing flame of an explosion will weaken the explosion, but I believe I have reason and facts on my side, when I state that such excessive supply cannot in any way add to its power. Only a certain quantity of dust, varying according to conditions in each case, can be effectively ignited by the flames of an explosion, and in my judgment, the mine containing just enough dust to supply the flames of an explosion all it can readily consume is at least fully as dangerous as the mine with larger accumulations of dust, provided, of course, that other conditions are identical. It appears to be not a question as to the amount of fuel available, but as to how much of it can be used under the circumstances with the greatest possible effect.

Some years ago several governments in Europe appointed commissions to investigate and establish the cause of these explosions. These commissions did a large amount of experimental work and their experiments

proved of considerable value to all interested in mining, but as they were principally conducted with the view to establish the dangerous character of the coal dust in the presence of heat and flame from blown-out or overcharged shots, other features brought out by them did not at the time receive the attention they deserved, and in consequence of that fact the deductions made were not always as complete and exact as they might have been had these features received more careful consideration. There is ample excuse for this, however, for it must be remembered that the experiments were necessarily conducted under conditions that differed materially in many respects from those existing in an actual mine, and it could hardly be expected that absolutely correct deductions would be possible under such circumstances.

As an illustration of the manner of conducting these experiments and reaching conclusions from results obtained, the following furnishes an interesting and valuable example. The experiment and investigation was made by Messrs. Hall and Clark of England. It was carried on in a slope of thirty square feet sectional area, arched with brickwork and driven down from the surface a distance of forty-five yards. The charge of powder was fired from a strong iron tube, two feet long and two and one-half inches diameter. This is their description of the experiment and its results: "'Coal dust having been scattered the whole length of the slant, the thill being very wet, fired two and one-half pounds of powder. In this case flame issued strongly at the mouth of the slant, having traveled forty-five yards. The blast was very fierce, and would certainly have proved fatal to anyone struck by it in its course. It was noticeable in this experiment that not only was the flame largely increased, but the blast was also proportionately greater, and bearing in mind that the floor of the slant was very wet (dripping), and the temperature low (50 degrees), we may fairly assume that in dry mines at a high temperature and where the roads are always covered with fine dust, this dust will play a considerable part in extending and adding to the destructiveness of an explosion."

The experiment was conducted under ideal conditions and brought out all the essential component parts of the cause of an explosion in a non-gaseous mine. The investigators, however, did not at the time take in account the importance of all these factors, in fact for years very little attention was paid to some of them and the opinion prevailed for a long time, that all that was necessary to cause an explosion, in the absence of firedamp, was plenty of coal dust and the intense heat and flame produced by blown-out or overcharged shots.

Here are the conditions as we find them to exist at Mr. Hall's experiment: 1. We have the heat and flame from the equivalent of a blown-out shot. 2. We know that the ventilation of the slope was of such a character as to insure pure air in all parts of it. 3. We note the presence of coal dust, (its state with regard to wetness or dryness not well defined). 4. We find that the slope was a place of small dimensions, affording little expansion room for the heated air and gases. 5. We find that the temperature was low (50 degrees). 6. We find that the course of the explosion was an ascending one. Mr. Hall says the result of the experiment was a very fierce blast, that would certainly have proved fatal to any one struck by it in its course.

A careful comparison of the conditions surrounding the experiment with the conditions, as investigation has proved them to exist at actual "dust" explosions, reveals a remarkable sameness, that warrants the conclusion that these conditions are essential in bringing about an explosion and further, that the four first named and generally the fifth must all be present to make such explosion assume dangerous proportions.

We may therefore state that the following are the essential factors of a dust explosion: 1. Intense heat and flame from blown-out or overcharged shots, or from shots fired in rapid succession in the same working place. 2. Good ventilation. 3. Coal dust (not necessarily very dry nor present in very large quantities. 4. Limited expansion room for the heated air and gases in the neighborhood of blown-out or overcharged shots. In addition to these factors there is another, that should be considered a prime factor, but which to be on the safe side, I shall call an auxiliary factor or a factor having a decided influence in increasing the severity and extent of an explosion, and that is a low mine temperature prevailing at the time of an explosion in the territory affected by it.

The fact that good ventilation is necessy to make a "dust" explosion possible, seems to be fully established, and it is so well known now, that there is little occasion to say anything further on this point. Good ventilation is the vitalizing agent of an explosion; without a plentiful supply of pure air near its origin, it will die in its incipiency.

Investigation as to in what mines or in what parts of a mine these "dust" explosions are most likly to occur shows conclusively that they either originated in new mines of limited extent, or, if in older mines, in the newer and more congested workings. The more room there is provided for the rapid expansion and dissipation of the heated gases in the vicinity of blown-out or overcharged shots, the more remote will the possibility of a "dust" explosion become. It seems that the heat must first be confined to narrow channels to give the forming explosion the necessary impetus to project itself through the whole or a considerable portion of a mine.

The influence of a low mine temperature in assisting the formation and extension of "dust" explosion is so marked, that it should receive special attention. In the earlier investigations of these explosions, it appears, that temperature was deemed of small importance and received very little attention. Mr. Hall, in commenting on the results of his experiment, did take in account the state of temperature, but he evidently made a mistake, when he considered low temperature a check to these explosions rather than a help, for nearly all these so-called "dust" explosions have occurred during the colder months of the year and, so far as I know, there is no record of an explosion, caused by a blown-out shot, having occurred in a non-gaseous mine during the months of July and August. Admitting that most mines have a greater degree of dampness in the summer than in the winter and that in consequence the safety of the mines is thus increased somewhat, yet, as we have seen that dampness alone is not a reliable preventive of explosions, there must be other reasons why "dust" explosions are of such rare occurrence during the summer. We know that the supply of oxygen, under like conditions, is less in a mine during the summer than in the winter; we also know that natural ventilation, which plays a very important part in the winter time in supplying the workings adjacent to the main air

channels with fresh air, is almost altogether absent in the summer. Now, all these conditions, affecting more or less unfavorably the formation of a "dust" explosion, are brought about by the same cause, viz. high temperature of the air entering a mine, and therefore high temperature may rightly be regarded as a far more reliable preventive of "dust" explosion than dampening the dust by sprinkling. On the other hand, an air current of low temperature entering a mine constitutes a powerful aid in assisting the formation and enlarging the scope and force of such explosions. Good ventilation is essential to a "dust" explosion, and we know that an air current of low temperature will ventilate a mine more thoroughly than one of high temperature, other conditions being the same. Again, the lower the temperature, the less natural dampness will exist in a mine. It is also a fact, that the lower the temperature of an air current flowing through a mine at the time of an explosion, the greater will be the expansive force developed under the same conditions. The law that under the same pressure the volume of any gas or air varies as its absolute temperature has direct application in this case. Supposing that the flaming gases coming from a blown-out shot had a temperature of 2000° F., and that the temperature in a mine in the vicinity of such shot was 75°, it follows that, as long as the difference in temperature between the flaming gases and the mine and the pressure remained the same, the mine air and the other gases, after attaining a temperature of 2000°, would be expanded to 4.605 times their original volume. If the mine temperature was lowered to 40° F., other conditions remaining the same, the expansion would amount to 4.927 times the original volume. To illustrate the effect: With an original temperature of 40° in a territory traversed by an explosion, the increase in the volume of heated air contained in an entry, 40 square in area, would be for every hundred feet of its length nearly 1300 cubic feet greater than if the temperature at the time of the explosion had been 75°. It needs no argument to show the disastrous effect of such increased expansion.

The explosions which occurred in No. 4 mine, Cleveland, Iowa, on January 5th and February 5th, 1901, respectively, furnish the rare opportunity for observing the actions and effects of two explosions originating almost in the same place and extending over the same territory. The explosion on the 5th of January originated at the face of the third east entry on the north side, the explosion of the 5th of February started in room 13 on the fourth east entry, less than fifty yards distant from the seat of the first explosion. Both explosions extended through the third and fourth east entries to the main north and along this entry to the hoisting shaft and through it to the surface. Not only as to the place of origin and territory affected were these explosions decidedly similar; the manner of shotfiring was the same, the amount of air entering the mine was about the same in each case and there was no perceptible difference in the condition of the entries as to the dampness and the amount of dust present.

There was this difference, however: The amount of powder contained in the three shots fired in the third east entry was probably twice as large as the amount used for the two shots fired in room 13 on the fourth east entry. Two of the holes in the third east were tight ones, while the holes in room 13 were fair holes that did the work intended for them to do, although one of them had too much powder. With this fact before us, it was not surpris-

ing at all to find that the heat developed at the starting point of the first explosion was very intense and the display of force there very great, while the second explosion left scarcely any signs of great heat and created no unusual disturbance, either in room 13 on the fourth east or its immediate vicinity, and it would seem that, under these circumstances, the conclusion would have been justified that the first explosion would at least maintain its superior degree of violence all the way through. But this proved not to be the case, for strange as it may seem it lost considerable of its initial force in its travel to the shaft, while the second explosion gained force and became more destructive on its way out. It ejected a larger volume of smoke and dust from the hoisting shaft than the first one and demolished stoppings and doors along the main north that the first explosion had failed to damage,

How can we account for this? The physical condition of the mine in the immediate vicinity of the starting points of these explosions had probably some influence, but the fact that these starting points were less than fifty yards apart suggests that some other influential cause must have been at work to bring out the second explosion's extraordinary development of force. I submit that this cause was the very low temperature prevailing on the day of the second explosion. Mr. S. H. Mallory of Chariton (the county seat of Lucas county, where these explosions occurred) has kindly furnished me a copy of his meteorological records for the months of January and February, 1901, and according to these records the mean temperature on the day of the first explosion, January 5th, was 27.5°, and on the day of the second explosion, February 5th, 5.5°. It was therefore twenty-two degrees colder on the last named date. Of course the above readings refer to outside temperature only, but there is little doubt, in this case, at least, that any increase or decrease in the outside temperature would manifest itself in a proportionate degree in that part of the mine where the explosions occurred. I have already called attention to the influence of temperature on "dust" explosions and the comparison of the two explosions in the Cleveland mine, occurring as they did, under almost identical conditions, seems to sustain the views I have expressed on that point.

There is nothing very mysterious or unexplainable in these "dust" explosions. They are not due to agencies beyond the control of man. Much has been said as to how they may be prevented, but the greatest safeguard of any mine rests in the ability of the management and the miners employed therein to understand thoroughly the nature of the danger they may have to deal with. When that is accomplished it will prove a comparatively easy task to devise adequate means to eliminate that danger, or at least minimize it to the utmost.

TABLE No. 4.

List of corporations, firms, and individuals operating mines in the second district, their post office address and shipping facilities, if any:

MAHASKA COUNTY.

CORPORATION, FIRM OR INDIVIDUAL.	POST OFFICE ADDRESS.	SHIPPING FACILITIES.
Consolidation Coal Co	Muchakinock	Chicago & Northwestern.
Klondyke Coal Co	Oskaloosa	Chicago & Northwestern.
Kennebec Coal Company	Muchakinock	Chicago & Northwestern.
Lost Creek Fuel Co	Lost Creek	Chicago & Northwestern.
Regal Coal Co	Oskaloosa	Chicago & Northwestern.
Iowa Fuel Co	Oskaloosa	Chicago & Northwestern.
Mahaska Coal and Mining Co	Oskaloosa	Chicago & Northwestern.
Atwood Coal Co	What Cheer	Chicago & Northwestern.
Eveland Coal Co	Eveland	Chicago & Northwestern.
American Coal Co	Evans	Rock Island.
Oskaloosa Coal and Mining Co	Oskaloosa	Rock Island.
Garfield Coal Co	Beacon	Rock Island.
Little-Hoover Coal Co	Oskaloosa	Rock Island.
Richard Bros	Evans	Rock Island.
Wm. Patterson	Leighton	Rock Island.
Whitebreast fuel Co., of Illinois	Ottumwa	Iowa Central.
Sowden Coal Co	Beacon	Burlington & Western.
Smith Bros	Oskaloosa	Local.
G. Clough	Oskaloosa	Local.
Barrowman & Oakley	Oskaloosa	Local.
Fred Schultz	Oskaloosa	Local.
J. Baxter	Oskaloosa	Local.
Geo. Cook	Oskaloosa	Local.
Oskaloosa Fuel Co	Oskaloosa	Local.
Evans Coal Co	New Sharon	Local.
W. F. Williams	New Sharon	Local.
John Madison	Beacon	Local.
F. D. Coryell & Son	Eddyville	Local.
Jas. Staley	Harvey	Local.
Frey Bros	Leighton	Local.
M. Carey	Rose Hill.	Local.

MARION COUNTY.

Donley Coal Co	Hamilton	Wabash.
Wild Rose Coal and Mining Co	Des Moines	Wabash.
O K. Coal Co	Bussey	Wabash and C. B. & Q.
Hawkeye Coal Co	Flagler	Chicago, Burlington & Quincy.
S. R. Rollings	Flagler	Chicago, Burlington & Quincy.
Hamilton Coal Co	Hamilton	Chicago, Burlington & Quincy.
Ennis & Stillwell	Hamilton	Chicago, Burlington & Quincy.
Dunreath Coal Co	Des Moines	Wabash.
Forest Fuel Co	Otley	Chicago, Rock Island & Pacific.
McCroskey & Co	Otley	Chicago, Rock Island & Pacific.
Yukon Coal Co	Otley	Chicago, Rock Island & Pacific.
Roberts & Young	Otley	Chicago, Rock Island & Pacific.
H. Booth	Knoxville	Local.
J. T. Hayes	Knoxville	Local.
Theo. Johnson	Bussey	Local.
Wm. Pace & Co	Otley	Local.
Union Coal Co	Pella	Local.
J. R. Dieleman	Pella	Local.
Geo. Davis	Hamilton	Local.

KEOKUK COUNTY.

CORPORATION, FIRM OR INDIVIDUAL.	POST OFFICE ADDRESS.	SHIPPING FACILITIES.
Volunteer Coal Co	What Cheer	Burl., Cedar Rapids & Northern
Margaret Coal Co	What Cheer	Burl., Cedar Rapids & Northern
William Blatt	What Cheer	Burl., Cedar Rapids & Northern
Crescent Coal Co	What Cheer	Chicago & North-Western.
Columbian Coal Co	What Cheer	Chicago & North-Western.
Hommerin & Son	What Cheer	Chicago & North-Western.
Lambert Bros	What Cheer	Chicago & North-Western.
Baker Bros	What Cheer	Chicago & North-Western.
Grudgings Bros	What Cheer	Local.
H. Murray	What Cheer	Local.
D. Peacock	What Cheer	Local.
T. Armstrong	What Cheer	Local.
T. Mason	What Cheer	Local.
M. Fisher	Delta	Chicago Rock Island & Pacific.
R. W. Allsup	Delta	Local.
Bell and Teeters	Delta	Local.

LUCAS COUNTY.

Whitebreast Fuel company of Illinois	Cleveland and Ottumwa	Chicago, Burlington & Quincy.
Big Hill Coal Co	Lucas	Chicago, Burlington & Quincy.
Lucas and Cleveland Coal Co	Lucas	Chicaga, Burlington & Quincy.

ADAMS COUNTY.

J. M. Henton	Eureka	Local.
Ed. Amdor	Eureka	Local.
W. R. Miller	Briscoe	Local.
C. W. Powley	Briscoe	Local.
Rice & Collins	Carbon	Local.
N. S. Wheeler	Carbon	Local.
John Ruth	Carbon	Local.
Rees & Perks	Carbon	Local.
E. McKee	Carbon	Local.
M. Jones	Carbon	Local.
T. Gebbie	Carbon	Local.
S. O. Trowbridge	Carbon	Local.
J. F. Wilds	Carbon	Local.
R. Hathaway	Hoyt	Local.
Day Bros	Hoyt	Local.
Jas. Spargur	Hoyt	Local.

WARREN COUNTY.

Somerset Coal Co	Somerset	Chicago, Rock Island & Pacific.
King & Turnipseed	Somerset	Chicago, Rock Island & Pacific.
Shackey & Bennum	Somerset	Local.
Welch Bros	Somerset	Local.
Wishman & Cumming	Somerset	Local.
Huff & Baber	Carlisle	Local.
N. D Bales	Milo	Local.
S. C. Bryant	Milo	Local.
J. A. Williams	Milo	Local.
Ed Rowley	Liberty Center.	Local.

SCOTT COUNTY.

A. McDonald	Jamestown	Local.
Metzger & Kancher	Jamestown	Local.
L. Long	Jamestown	Lolal.
Buchmeier & Carlin	Jamestown	Local.
Chas. Sass	Jamestown	Local.
E. T. Langwith	Jamestown	Local.
Theo. Kautz	Buffalo	Local.
Thos Webster	Buffalo	Local.
Ed McCollough	Buffalo	Local.

BIENNIAL REPORT

OF THE

THIRD DISTRICT,

EMBRACING

Adair, Boone, Dallas, Greene, Guthrie, Jasper, Polk, Story, and Webster Counties.

JAMES W. MILLER, INSPECTOR.

LETTER OF TRANSMITTAL.

To the Hon. L. M. Shaw, Governor of Iowa:

SIR.—As inspector for the third mining district, I have the honor to present, herewith, the biennial report for the above district, which report contains the usual tabulated statements relative to the production of coal, improvements, casualties, and such other information as I deemed of importance to the mining interest.

Respectfully,

J. W. MILLER.

REPORT OF THIRD DISTRICT.

The condition of the coal business has been very satisfactory during the past biennial period, ending June 30, 1901, for the demand has been good and prices have averaged much better than in former years. Miners have been benefited by the decrease in hours, as eight hours constitute a day's work around all the mines in this district; mining price has been advanced, also top wages, and in a number of instances wages for underground day work have met an advance. It is also noticeable that a kindly feeling seems to prevail throughout the various mines between the officials and employes. The state meetings called yearly by the operators and miners to talk over and adjust the scale of prices for mining, day work, brushing and all other questions pertaining to the mining business, has met with universal satisfaction. There is an executive board elected by the operators and by the miners to act as an arbitration board to decide the various questions that come up, from time to time, between the companies and their men, which has saved a great deal of the unpleasant feeling that formerly existed during the adjusting of differences between mine officials and their men. This all tends to show that the interests of employer and employe are being appreciated by both alike, and thus they should be; for the successful operation of a mining plant means a good investment for the company and likewise a good investment to the miners for the time spent therein.

I am pleased to state that my official duties between operators and miners have been very agreeable and satisfactory to me. And I wish to thank the officials of both operators and miners for the help rendered me and the interest they have taken in bringing about and securing the present very gratifying conditions of our mines, for the same is beneficial to all concerned. During the past year the mines, as a rule were found to be in better condition, from every point of view. There are several reasons for this; one is business and prices have been better, which all tends toward successful operations. Also evidence of a willing spirit to faithfully comply with the requirements of our mining laws has been shown, which greatly aids an inspector in carrying out the intent ot the law.

This, the third inspection district, comprises the following counties: Polk, Boone, Webster, Jasper, Dallas, Green, Guthrie, Story and Adair. There are about one hundred and twenty-six mines in the nine counties, and are classed as follows: Fifty-four doing an exclusive shipping business; twenty sell most of their product to local trade, but load some coal on cars; while fifty-two are operated for local trade only. There are within the district fifty-seven mines equipped with steam plants for hoisting purposes. The balance use horse or mule power, whichever is best adapted. At different small local mines they have gasoline equipments for pumping

water and running fans, which seems to give good results, and saves the expense of placing boilers and possibly the using of poor boiler water. Very few of the mines coming under the jurisdiction of the inspector use furnace ventilation, for that method is expensive, inconvenient and unreliable.

There were quite a number of good and substantial improvements made during the past biennial period. Companies have enlarged their ventilating machinery, remodeled their pit heads and top equipments, and placed better hoisting appliances to handle their increased output. Also several new shafts were put down, which were equipped with modern improved machinery and fitted up with labor-saving devices.

A WORD ON VENTILATION.

The Inspector finds the matter of ventilation one of the most important features connected with his official duties. as the health of those working underground depends largely on the condition of the air they breath. Also the conditions governing the ventilation of the mines are changing daily, and require constant attention and careful supervision from the mine foreman to keep the mine in proper condition.

The mining business, of this State, has reached the point that a mine manager or mine foreman cannot expose his incompetency in any better way than to have within his employ, and continue to have, a poorly ventilated or undisciplined mine. For, regardless of what conditions may exist, a practical and competent mine foreman will, in time, figure ahead on the laying out of his underground workings to such an extent as to take advantage of emergencies that he may come in contact with; and by so doing avoid delays, extra expense, and uncalled for grievances; which all tends to reduce the cost of his products when landed on the tipple, and is furthermore a benefit to the investors, producers, and all concerned.

The miners are greatly interested in good ventilation, and, as they spend a good portion of their time at the face underground, it is very essential that they should be. Yet, it is a common occurrence to find a room turned and driven in twenty to twenty-five yards without a break-through; and expect the same to be properly ventilated. This sometimes is the fault of the miners themselves, who in their eagerness to make money neglect to take the proper precaution to care for and ventilate the working place, but more often the neglect of the operator, who does not want to pay the expense incurred in making the necessary break-throughs, to allow the current of air to reach the working faces. Also, very often after a break-through has been made, there is fifty per cent of it filled up with draw slate, props, tool-boxes, or some kind of refuse, which all act as an obstruction to retard the air and reduce the quantity. In fact, many yards of entry, for air-ways, could be saved by having the same made a proper size and taken care of after it had been driven. Air traveling along an air-way of proper size, through break-throughs free from obstructions, means a great deal toward good ventilation. And to obtain this it is only necessary for all employes working below to work to each other's interests.

The air traveling down one shaft, and along through the air-courses,

returning to the up-cast shaft, having only partially traveled along the faces, where the men are at work, it is not proper ventilation by any means. To properly ventilate a mine, first have ventilating machinery and fan of sufficient capacity to handle 30 per cent more air than the law calls for, air-shaft, air-courses, and break-throughs made plenty large enough to admit a volume of air of sufficient quantity with the least possible resistence to the same. The use of over or under-casts are also of great benefit. By giving to each pair of entries a separate current of air, you decrease the friction increase the quantity of air, and avoid the powder-smoke and impurities from other entries; also lessen the danger should an explosion occur, for there would be less men to come in contact with it.

Regarding the splitting of air, there is, of course, a limit. The volume of air should not be reduced below a speed and quantity that will mix and remove the impurities from the working faces. The speed or velocity of the air depends on the size of the air-ways. They should, of course, always be large enough to permit a sufficient quantity of air to travel at a reasonable velocity. The best law to govern a mine foreman on this question is to have air enough to remove all obnoxious gases from the working places and replace the same with fresh air. To do this he will have large air-courses; divide his volume; place good substantial doors between entries; keep his unused break-thoughs bratticed up tight, and those that are in use free from obstructions, such as tool-boxes, timber, loose slate, and rubbish; and carry his air up through the last open break-throughs where men are at work.

MINE FOREMAN'S LAW.

During the session of the legislature of 1900, there was a law passed which took effect January 1, 1901, requiring all mine foremen and hoisting engineers, being employed at mines producing more than twenty-five tons of coal per day, to pass an examination or obtain a certificate for service from the examining board. Said board consists of five members representing the different interests pertaining to mining. Said board began holding sessions, in August, 1901, at the various mining centers, at such periods as they deemed advisable, for the convenience and benefit of all concerned. There has been issued, up to June 30, 1901, 605 mine foremens' and — hoisting engineers' certificates.

In my opinion there has been no piece of legislation enacted in recent years that should be of more benefit to both miners and operators alike than this act to the operators for the reason that it has stimulated the mine foremen and hoisting engineers in their desire for knowledge pertaining to their duties, in order to enable them to pass the examination and receive a certificate, which would enable them to hold their positions if already employed in either capacity, and if not so employed to enable them to secure such a position. This knowledge, on the part of the mine foreman, is always a benefit to the operator or owner of a mine, for the reason that it should enable him to keep his mine well ventilated, and pillars of a proper thickness, and avoid extra yardage on break-throughs. In fact, it will mean a better ventilated mine, and more regard will be paid to the law in reference to health and safety to those employed underground, also a benefit to the

mine foreman himself; as a man with a thorough knowledge of his calling can always get a better salary than one who is not so well informed.

I have visited the mines, during the past biennial period, as often as time and occasion demanded. At these visits I did not always find the various mining plants in strict compliance with the mining laws. But I am glad to report that I have always found the officials in charge of the various plants ready and willing to make the necessary repairs and improvements suggested as being essential in the preservation of life and health of the miners.

A WORD REGARDING FANS.

In some of our large mines there is not enough attention paid to the movement of the fan; especially during the night. Where there are old workings in the various parts of the mine left open, they naturally fill up with damps; and unless properly bratticed up, the moment you reduce the air pressure, by opening doors or reducing the speed of the fan, the damps rush out on the entries and remain there until the pressure and current of air is again resumed; and when the current is increased the damps are carried through the working places. And very often the damps that have accumulatad during the night are not entirely removed from the working places in the mine for several hours after the men start to work in the morning. This should not occur. The pressure should be the same at night as during the day. To do this the fan must be kept at the same speed, so as completely clean the mine of all impurities throughout the working places. It requires very little more fuel and attention to keep the fan running at the same speed, and there certainly is a great benefit to be derived by having the mine filled with fresh air in the morning when the men go to work.

MAPS OF ABANDONED MINES.

It requires considerable urging, at times, to secure a compliance with the mining law as regards the filing of a map of abandoned mines with the inspector At times I think that the officials of the various mines do not realize the importance of the same. It is very essential that maps of all abandoned mines should be on file, for it affords those having adjoining territory valuable information; especially where a mine is filled with water. To know approximately the extent of such workings, so as to guard against holing through from adjoining territory, is not only a great advantage to the company, but a safeguard to the employes working below.

SCALES.

There was enacted during the Twenty-Second General Assembly a law requiring each mine inspector to procure a set of test weights for the purpose of testing the scales at the various mines used for weighing the miners'

coal. This law is still in vogue without any changes since the enactment of the same.

During the past biennial period nine-tenths of the scales used for weighing miners' coal in the third district have been tested, and some of them several times. The majority have been found deficient, and when found in such condition the company has, in nearly every case, been willing and ready to place the work of adjusting the same in a scale company's hands, to be placed in proper weighing condition as quickly as possible. Still, in some cases, scales were found deficient after being taken out, repaired and replaced. The only reason for such to occur was the incompetency of those attempting to adjust the same, which means not only an additional expense to a company, but delay and annoyance to all concerned.

The inspector finds, in a large majority of cases where he is called on to test the scales at the various mines, that the trouble lies in the dividing of each man's coal. Where a scale-beam does not break quick enough or requires too much weight to show the movement of the same, it is impossible for the weighman to give each man his just dues; and yet, on the other hand, it is possible the aggregate or full car will have been weighed within one hundred and fifty or two hundred pounds either way; showing, in this case, that the weighman has credited the men with all the coal that is due them, but might not have placed on his bulletin the proper weight of each individual car, giving too much weight to one and not enough to another.

This may be caused from a number of reasons: the weather, the contracting and expanding of the extension rods; knives or bearings becoming dull; and foundations settling and becoming uneven, or being bound so that the platform does not work freely.

Allowing locomotives to pass over a scale, or pulling loaded cars back over the same, has cost more money than any one thing in connection with a scale. This should always be avoided if possible.

BAROMETERS.

There are two kinds of barometers, the mercurial barometer and the aneroid barometer. The mercurial barometer measures the variations of the atmosperic pressure, by the raising or the falling of mercury in a glass tube. With the aneroid barometer the pressure of the air is measured without the use of a liquid. The pressure of the atmosphere causes upon the circular metal boxes, which has been nearly exhausted of air and then soldered air-tight. The sides of the box are corrugated in concentric rings, so as to increase their elasticity. Owing to the box being nearly exhausted of air, it becomes extremely sensitive to the changes and different weights of the atmosphere.

WHAT CONNECTION HAS A BAROMETER WITH A PUMP?

A barometer is used to obtain the weight of the atmosphere and the pressure that the same is exerting wherever the barometer may be placed, either

on a high or low point. By knowing the weight of the air per square inch you are enabled to know how far a pump will lift water. The weight of the air varies according to the density of the same. A pump, having the plunger in the water cylinder properly packed, when put in motion creates a vacuum in the cylinder and allows the pressure of the atmosphere, which is pressing down on the surface of the water, to force the column of water up the suction-pipe to a height equal to that of the weight of the air. The mercury used in a mercurial barometer is 13.6 heavier than water, so, if the weight of the air indicates 29½ on the face of the barometer, with a perfect vacuum the water would be forced to a level with the weight of the air, which would be about 33½ feet in height; for 13.6 multiplied by 29.5, divided by 12 inches, which equals one foot, would give 33.4 feet that the water has been lifted by the above pump and pressure.

A barometer is also used in connection with mines, more especially where the mines are giving off explosive gases in sufficient quantities to cause an explosion when mixed with air in adequate proportions. The higher the barometer the less danger of escaping gases within the workings of a mine; for the reason that the air is heavier, causing a greater pressure, and keeping the lighter gases stored up in goves, abandoned workings, crevices, etc. A low barometer indicates less weight, lighter air, and consequently less pressure in the mine; and allows the lighter gases to come out from where they have been pent up and mix with the ventilation or the volume of air.

We do not have marsh-gas, or firedamp, in the mines of Iowa—which is marsh-gas being mixed with air to an explosive point, at which point it becomes firedamp. A barometer placed at the bottom or top of a shaft at the various mines in this state would be of considerable benefit, for this reason, when there is a low barometer, indicating a lighter air, then, to avoid reducing the quantity of air in a mine, you can increase the speed of the fan, thereby overcoming the decreased atmospheric pressure.

Very often, during a time when the air is moist or foggy, you will hear the men say the air is heavy. By looking at the barometer you will find they are mistaken, for during such weather the air is lighter and requires more of it to accomplish the same results. A study of these questions will aid one in ventilating his mine or building.

POLK COUNTY.

List of companies, firms and individuals operating mines in the Third District, their location and their shipping facilities, if any.

FIRM	LOCATION OF MINE.	SHIPPING FACILITIES.
Saylor Coal and Mining Co	5½ miles north of Des Moines	Chicago & North Western.
Des Moines Coal and Mining Co	5 miles north of Des Moines	Chicago & North-Western.
Maple Grove Coal and Mining Co	4 miles northeast of Des Moines	Chicago & Great-Western.
Norwood Coal & Mining Co	6 miles northeast of Des Moines	Chicago & Great-Western.
Highland Coal and Mining Co	5 miles northeast of Des Moines	Chicago & Great-Western.
Gibson Coal and Mining Co	2 miles east of Des Moines	Chicago & Great-Western.
Midway Coal and Mining Co	5 miles southwest of Des Moines	Chicago & Great-Western.
Christy Coal and Mining Co	5 miles east of Des Moines	Chicago, Rock Island & Pacific.
Lowe Smith Coal and Mining Co	6 miles east of Des Moines	Chicago, Rock Island & Pacific.
Glenwood Coal and Mining Co	3 miles east of Des Moines	Chicago, Rock Island & Pacific.
Elko Coal and Mining Co	3 miles south of Des Moines	Chicago, Rock Island & Pacific.
Coal Hill Coal and Mining Co	8 miles southwest of Des Moines	Chicago, Rock Island & Pacific.
Bloomfield Coal and Mining Co	3 miles north of Des Moines	Chicago, Milwaukee & St. Paul.
Keystone Coal and Mining Co	3 miles northwest of Des Moines	Chicago, Milwaukee & St. Paul.
Eagle Coal and Mining Co	2½ miles northwest of Des Moines	Chicago, Milwaukee & St. Paul.
Central Coal and Mining Co	2½ miles northwest of Des Moines	Chicago, Milwaukee & St. Paul.
Flint Brick, Coal and Mining Co	4 miles north of Des Moines	Des Moines Street Railway Co
Co-Operative Coal and Mining Co	3½ miles north of Des Moines	Des Moines Street Railway Co.
Diamond Joe Coal and Mining Co.	Runnels	Wabash

BOONE COUNTY.

Boone Coal and Mining Co	Milford	Chicago & North-Western.
W. D. Johnson Coal and Mining Co	Incline.	Chicago & North-Western.
Crow Coal and Mining Co	3 miles west of Boonsboro	Chicago & North-Western.
Heaps Coal and Mining Company	2½ miles west of Boonsboro	Chicago & North Western.
Zimbleman Coal and Mining Co	1½ miles west of Boonsboro	Chicago & North-Western.
Risher Coal and Mining Co.	2 miles west of Boonsboro	Chicago & North-Western.
Morgan & Canfield Coal and Mining Co	5 miles west of Boonsboro	Chicago & North-Western.
Rodgers Coal and Mining Co	Incline	Chicago & North-Western.
Benson Bros. Coal and Mining Co	3½ miles west of Boonsboro	Chicago & North-Western.
Boone Valley Coal and Railway Co.	Fraser	Boone Valley Coal and Railway Co.

WEBSTER COUNTY.

FIRM.	LOCATION OF MINE.	SHIPPING FACILITIES.
Webster County Coal and Land Co	3 miles southwest of Lehigh	Mason City & Ft. Dodge Railway Co
Daily Coal and Mining Co	3½ miles southwest of Lehigh	Mason City & Ft. Dodge Railway Co.
Crooked Creek Coal and Mining Co	2½ miles south of Lehigh	Crocked Creek Coal and Railway Co.
Corey Coal and Mining Co	2½ miles south of Lehigh	Crocked Creek Coal and Railway Co.
Gleason Coal and Mining Co	Coalville	Mason City & Ft. Dodge Railway Co.
Collins Coal and Mining Co	Coalville	Mason City & Ft. Dodge Railway Co.
Pleasantville Coal and Mining Co	1½ miles east of Coalville	Mason City & Ft. Dodge Railway Co.
Craig Coal and Mining Co	Kalo	Minneapolis & St Louis.
Johnson Coal and Mining Co	Kalo	Minneapolis & St. Louis.
Irwin Bros Coal and Mining Co	Kalo	Minneapolis & St. Louis.

JASPER COUNTY.

Jasper County Coal and Mining Co	3 miles south of Colfax.	Iowa & Northern; C G. W.; C. R. I. & P.
Colfax Coal and Mining Co	4 miles southeast of Colfax.	Iowa & Northern; C. G. W; C. R. I. & P.

DALLAS COUNTY,

Carpenter Coal and Mining Co	6 miles southwest of Madrid	Chicago, Milwaukee & St. Paul.
Huchinson Bros. Coal and Mining Co	2 miles west of Dawson	Chicago, Milwaukee & St Paul.

POLK COUNTY.

NAME OF COMPANY, FIRM OR OPERATOR.	SUPERINTENDENT.	POSTOFFICE ADDRESS.	Shaft or slope.	PLAN OF WORKING MINE.	HOW VENTILATED.	Power used.	Shipping or local.
Des Moines Coal and Mining Co.	Chas. Morris	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
J. M. Christy Coal Co.	Geo. Grylis	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Saylor Coal Co	D. B. Flemming	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.

Smith & Lowe Coal Co., No. 2	E. C. Smith	Carbondale	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith & Lowe Coal Co., No. 3	E. C. Smith	Carbondale	Shaft	Room and pillar	Fan	Steam	Shipping.
Norwood Coal Co	Jos. Norwood	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Maple Grove Coal Co	Chas. Swanson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Gibson Coal Co	Jno. Gibson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Bloomfield Coal Co., No. 2	Geo. Yarn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Diamond Joe Coal Co	Jos Ramsay	Runnels	Shaft	Room and pillar	Fan	Steam	Shipping.
Keystone Coal Co	E. M. Grey	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Eagle Coal Co	G. M. Holmes	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Midway Coal Co	C. H. Fullerton	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
West Riverside Coal Co	Jos. Jackson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Flint Brick Coal Co	Michael Quinn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Co-operative Coal Co.	A. Bloomquist	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Central Coal Co	Tom Ray	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Oak Park Coal Co	C. McClellan	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Glenwood Coal Co., No. 1	Caleb John	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Glenwood Coal Co., No. 2	Caleb John	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Proctor Coal Co	Wm. Edge	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Elko Coal Co	Thos. Beck	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
South Park Coal Co	Andy Carlson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Avon Coal Co	Jno. Evans	Levy	Shaft	Room and pillar	Fan	Steam	Shipping.
Coal Hill Coal Co	J. W. Hammond	Levy	Shaft	Room and pillar	Furnace	Horse	Shipping
Highland Coal Co	J. Limblom	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Humes Coal Co	Robt. Humes	Commerce	Shaft	Long wall	Furnace	Steam	Local.
Commerce Coal Co	L. Tilton	Commerce	Shaft	Long wall	Fan	Horse	Local.
Likes Brick and Coal Co	Jos O'Neil	Des Moines	Slope	Room and pillar	Fan	Steam	Local.
Sortel Coal Co	Jno. Shortell	Levy	Shaft	Room and pillar	Furnace	Horse	Local.
Balzar Coal Co	Jno. Balzar	Des Moines	Shaft	Room and pillar	Furnace	Horse	Local.
McKiney Slope	A. McKiney	Runnels	Slope	Room and pillar	Furnace	Horse	Local.
Newman Coal and Brick Co	Chas Newman.	Hastie	Slope	Room and pillar	Furnace	Horse	Local.

BOONE COUNTY.

Boone Valley Coal and R'y Co., No. 2	Thos. Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
Boone Valley Coal and R y Co., No 3	Thos. Carpenter	Boone	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining Co., No. 2	Samuel McClure	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining Co., No. 3	Samuel McClure	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining Co., No. 4	Samuel McClure	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
W. D. Johnson Coal Co	W. D. Morgan	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Heaps Bros. Coal Co	Geo. Heaps	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Zimbleman Coal Co	Geo. Zimbleman.	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Crow Coal Co	Wm. Crow	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Morgan & Canfield	W. D. Morgan	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Benson Coal Co	Wm Benson	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Risher Coal Company	T. W. Hughs	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Rodgers Coal Co., No. 1	Geo. Rogers	Boonsboro	Shaft	Long wall	Furnace	Horse	Shipping.
Rodgers Coal Co., No. 2	Geo. Rogers	Boonsboro	Shaft	Long wall	Furnace	Horse	Shipping.
Rodgers Coal Co., No. 3	Geo. Rogers	Boonsboro	Shaft	Long wall	Furnace	Horse	Shipping.

BOONE COUNTY—CONTINUED.

NAME OF COMPANY FIRM OR OPERATOR.	SUPERINTENTENT.	POST OFFICE ADDRESS.	Shaft or Slope.	PLAN OF WORKING MINE.	HOW VENTILATED.	Power used.	Shipping or local.
Ogden Coal Co	Jno. Benson	Ogden	Shaft	Long wall	Fan	Steam	Local.
Wilson mine	Jas. Wilson	Pilot Mound	Shaft	Room and pillar	Furnace	Horse	Local.
McCormick Coal Co		Luther	Slope		Furnace		Local
Wiscup Coal Co		Luther	Slope		Furnace		Local.

WEBSTER COUNTY.

Crooked Creek Coal Co., No. 4	F. E. Wilson	Webster City	Shaft	Long wall	Fan	Steam	Shipping.
Crooked Creek Coal Co, No. 5	F. E. Wilson	Webster City	Shaft	Long wall	Fan	Steam	Shipping.
Webster Coal and Land Co., No. 1	Jno. Davenport	Lehigh	Slope	Long wall	Fan	Steam	Shipping.
Pleasant Valley Coal Co	Jerry Dawson	Kalo	Shaft	Room and pillar	Fan	Steam	Shipping.
Gleason Coal Co	Jas. Gleason	Coalville	Shaft	Room and pillar	Fan	Steam	Shipping.
Corey Coal Co, No. 2	Rees Stephens	Lehigh	Shaft	Long wall	Fan	Steam	Shipping.
Collins Bros. Mine	Frank Collins	Coalville	Shaft	Room and pillar	Furnace	Steam	Shipping.
Johnson Coal Co	Wm. Johnson	Kalo	Shaft	Long wall	Furnace	Steam	Shipping.
Irwin Bros Coal Co	Thos. Irwin	Kalo	Shaft	Long wall	Fan	Horse	Shipping.
Owen Mine	Frank Owen	Ft. Dodge	Shaft	Long wall	Furnace	Horse	Local.
Timmons Mine	Hugh Timmons	Ft. Dodge	Shaft	Long wall	Furnace	Horse	Local.
Martin Mine	R. Martin	Coalville	Slope	Room and pillar	Furnace	Horse	Local.
Craig Coal and Mining Co., No 2.	Jerry Dawson	Kalo	Slope	Long wall	Fan	Steam	Shipping.
Craig Coal and Mining Co., No. 3	Jerry Dawson	Kalo	Slope	Long wall	Furnace	Horse	Shipping.
Bennet Coal Co	S Bennet	Kalo	Slope	Long wall	Furnace	Horse	Local.
Calford Coal Co	P Lochray	Moorland	Shaft	Room and pillar	Furnace	Steam	Local.
Allen Coal Co	T. J. Allen	Ft. Dodge	Shaft	Room and pillar	Furnace	Horse	Local.
Martin Coal Co	Chas. Martin	Moorland	Shaft	Room and pillar	Furnace	Horse	Local.

JASPER COUNTY.

Jasper County Coal Co. No. 4	Henry Thomas	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Jasper County Coal Co. No. 5	Henry Thomas	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Colfax Coal and Mining Co	Geo. Wilson	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Barret Coal Co	J. W. Barret	Colfax	Shaft	Room and pillar	Furnace	Horse	Local.

Little Star Coal Co	Chas. Anderson	Colfax	Shaft	Room and pillar	Furnace	Horse	Local.
French Coal Co	E. P. French	Newton	Shaft	Room and pillar	Fan	Steam	Local.
Robt. Carson	R. Carson	Newton	Shaft	Room and pillar	Furnace	Horse	Local.
Snooks Coal Co	Wm. Snooks	Newton	Shaft	Room and pillar	Furnace	Horse	Local.
Thomas Hanson	Thos Hanson	Colfax	Shaft	Room and pillar	Furnace	Horse	Local.
Jno. Gunter	Jno. Gunter	Colfax	Shaft	Room and pillar	Furnace	Horse	Local.
Walker Mine	Jno. Waddel	Vandalia	Shaft	Room and pillar	Furnace	Horse	Local.
Wm. White	Wm White	Vandalia	Shaft	Room and pillar	Furnace	Horse	Local.
Lister Coal Co	Afred Lister	Newton	Shaft	Room and pillar	Furnace	Horse	Local.
Wardel Mine		Vandalia	Shaft	Room and pillar	Furnace	Horse	Local.

GUTHRIE COUNTY.

Renslow Coal Co	Fred Renslow	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Caleb Thompson Coal Co	Caleb Thompson	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Scott Bros. Coal Co	M Scott	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Thomas Coal Co	Harry Thomas	Fansler	Shaft	Long wall	Furnace	Horee	Local.
Merchant Coal Co	Wm. Merchant	Fansler	Shaft	Long wall	Furnace	Horse	Local.
June Butler Coal Co	June Butler	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Phil. Raynor Coal Co	Phil Raynor	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Rittner Coal Co	Wm. Rittner	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Hughs Coal Co	S. T. Hughs	Fansler	Shaft	Long wall	Furnace	Horse	Local.
Reese Coal Co	D. B. Reese	Panora	Shaft	Long wall	Furnace	Horse	Local.
Buckeye Coal Co.	W Embrey	Panora	Shaft	Long wall	Furnace	Horse	Local.
White Ash Coal Co	M. Canary	Panora	Shaft	Long wall	Furnace	Horse	Local.

DALLAS COUNTY.

Carpenter Coal Co	O. M. Carpenter	Madrid	Shaft	Long wall	Fan	Steam	Shipping.
Platt Brick and Coal Co	J. L. Platt	Van Meter	Shaft	Long wall	Fan	Steam	Shipping.
Dawson Coal Co	W. C. Hutchins	Dawson	Shaft	Long wall	Fan	Steam	Local.
Mills Coal Co	Jno. Mills	Linden	Shaft	Long wall	Furnace	Horse	Local.
Reese Bros. Coal Co., No. 1	W. J. Reese	Madrid	Shaft	Long wall	Furnace	Horse	Local.
Reese Bros. Coal Co., No. 2	W. J. Reese	Madrid	Shaft	Long wall	Furnace	Horse	Local.
Morris Coal Co	Jos. Topping	Linden	Slope	Long wall	Furnace	Horse	Local.

GREENE COUNTY.

Willow Grove Coal Co	H. A. McElhaney	Angus	Shaft	Room and pillar	Fan	Horse	Local.
Goodwin Coal Co	Thomas Goodwin	Grand Junction	Shaft	Long wall	Furnace	Steam	Shipping.
Ditchburn Coal Co	Robt. Ditchburn	Angus	Slope	Room and pillar	Furnace	Horse	Local.
Thomas Coal Co.	H. L. Thomas	Perry	Shaft	Room and pillar	Fan	Steam	Local.
Buckeye Coal Co	Mike Fife	Angus	Shaft	Room and pillar	Furnace	Steam	Local.
Snake Creek Coal Co	Jno. Groom	Angus	Shaft	Room and pillar	Furnace	Horse	Local.

STORY COUNTY.

NAME OF COMPANY, FIRM OR OPERATOR.	SUPERINTENDENT.	POST OFFICE ADDRESS.	Slope or Shaft.	PLAN OF WORKING MINE.	HOW VENTILATED.	Power used.	Shipping or local.
Story County Coal Co	Wm Benson	Summit	Shaft	Room and pillar	Fan	Steam	Shipping.
Zenoville Coal Co	J. York	Gilbert	Shaft	Room and pillar	Furnace	Horse	Local.

ADAIR COUNTY.

Bennet Coal Co	A. J. Bennet	Adair	Shaft	Long wall	Fan	Horse	Local.

ACCIDENTS.

Accidents fall into several classes: fatal, non-fatal, serious, and not serious. We draw a line between the different classes of accidents; yet just where this line should be is often a question. Any rule adopted must be flexible. Accidents occur from various causes in and around the mines. It seems to be human nature for a large majority of the men following a hazardous occupation gradually, in many ways, to become careless. We also find from statistics that more than sixty-five per cent of the accidents occurring below are caused through the negligence of fellow workmen, who have had, as a rule, years of practical experience in the mines. However we are glad to report thirty-three per cent less fatal accidents during the last biennial period than the previous biennial ending June 30, 1899; which all tends to show that those having supervision of the mines and the employes are gradually becoming more careful. Nevertheless, there are accidents that occur in and around the mines that, with a reasonable amount of precaution and care used, could still be reduced in numher, which would be an advantage to all concerned; more especially to the unfortunate mothers, widows, and orphans that are left behind to battle for themselves.

It is probable accidents, that are not contained in this report, have occurred at the various mines that have not been reported to this office; either from neglect on the part of the company, or thinking them not of sufficient injury to report the same.

There was reported to this office from the various mines in the third district, during the past biennial period, thirty-eight noteworthy accidents: fourteen fatal and twenty-four non-fatal. The coroner's inquest for each fatal accident is on file in the general office.

The following is a summary of the accidents according to causes:—

S. O. Smith, who had been in the employ of the Carbondale Fuel compady only five day, met with a very painful accident about 3:30 P. M. on August 15, 1899, from the effects of which he died during the night. The accident was caused in the following way: Mr. Smith was working in room number four, turned from the seventh north, in mine No. 2. He had drilled his holes for the evening's blasts and went out to the room mouth to get the powder; leaving Robert Snook, who was working a room parallel, at the room face. While he was in the act of handling the powder at the tool-box, the cornor's jury find that in some unknown way the powder was ignited: from which explosion he received burns inwardly, to such an extent that he died.

At Boone Coal and Mining company's mine No. 1; located at Incline, Boone county, Mr. Robert Scollick, 49 years of age, while in the act of placing some props that had been knocked down by a fall of coal, was fatally injured by roof falling on him before he had placed the necessary timbers under the same.

Charles Moll; employed in fhe Carbondale Coal company's mine, located at Carbondale; met death instantly by a piece of falling roof. The same, falling a distance of five feet, crushed Mr. Moll to the floor, where he was afterward found by Chas. Figg and Hugh Simpson; who called help to remove the slate from him; but life was extinct.

John Marshall was killed on the 29th day of November, 1899, in the Crow and Marshall shaft, located 5½ miles west of Boone; in the following manner: He was superintendent of the sinking of this shaft. He went to the bottom of the shaft, and when ready to return got on a loaded bucket to ride to the surface. Material was being hoisted by an engine. The engineer hoisted the bucket, which Mr. Marshall was standing on, higher than usual. Mr. Marshall, thinking that he was being taken to the pulleys, let loose, turned head downward, going through the opening at the top, and falling to the bottom of the shaft; from which injuries he died.

While the Carbondale Coal company was putting up its tower over its No. 3 shaft all material was hoisted to the ground landing and there taken off and dumped. Mr. John Salvage, an employee of the company, was a top man. On the evening of December 8th he had taken a car of dirt off of the west cage and emptied the same. Returning to the shaft, the cage from which said car was taken had been removed to the bottom of the shaft, a distance of 125 feet. Mr. Salvage, not knowing of the change in cages, run the empty car into the open shaft and followed it down on top of the cage, injuring him internally, from which he died at 12;15 A. M. the the following day.

Joseph Kubic, who was mining coal for the Christy Coal company, on December 15, at 4:30 P. M., was found dead in his room under a shot of coal. Having lit one shot and thinking it had gone off, he returned to light a second shot; when the first one, not having gone off, exploded; crushing him inwardly.

On the morning of March 5, 1900, Jas. Powell came to his death by a fall of slate near the face of his room, while mining coal in the Avon mine near Levy, Polk county.

Wm. Channels, a top employee of the Des Moines Coal company, whose duty it was to handle the loaded cars as they were run off from the scales; was taking two cars down the main switch, and when in the act of twisting the brake he fell between said cars; the wheels passing over the body, crushing the arms so that amputation was necessary above the elbows. He also received a number of other bruises. The injuries afterward proved fatal. Time of the accident April 19, 1900, at 10:00 A. M.

A. Windbush, a cager at the Des Moines Coal company's mine, on the 20th of September, 1900, about 3:45 P. M., was pushing an empty car across the cage to change the same end for end, when the cage was taken away, catching Mr. Windbush between the cage and the cap, crushing him inwardly, from which injuries he died soon after being taken to the top landing.

There occurred at Carbondale mine No. 3, on December 5, 1900, about 10:45 an accident to A. L. Johnson in the following manner: While in the act of loading a car a piece of slate fell striking him on the head and shoulders and pinning him to the floor of the room. When taken out he lived only a short time.

An inquisition was held at Des Moines, Polk county, Iowa on the 6th, 9th and 11th days of February, 1901, before R. V. Ankeny, coroner of said county, upon the body of B. Logia, who while in the employ of the Christy Coal company, at Youngstown, Polk county, was killed on February 5th, about 4:45 P. M. Frank Jones was working in a room parallel to the room in which Mr. Logia worked, fired a shot on his right hand rib, which blew the shot of coal through into Mr. Logia's room, catching him while he was passing, and killing him almost instantly. Wm. Grant and Frank Jones both testified that Frank Jones stepped to the breakthrough, between the two rooms, and hallowed fire two different times. Whether Mr. Logia heard him or not is a question we will never be able to find out. The unfortunate man met death while trying to pass the shot in the pillar between the two rooms.

During the afternoon of April 13, 1901, Mr. Henry Thomas and Mr. Ryan were making a tour of their mine, No. 6, located at Colfax. They had visited nearly every working place in the mine, and when in the act of returning from the face of a room a piece of slate, weighing perhaps from six to eight hundred pounds, fell from between two slips, about half way between the face and the mouth of the room, striking Mr. Thomas on the head, crushing him to the floor; from which injury he died within one hour from the time of the accident. Mr. Thomas had charge, as superintendent, of the Jasper County Coal company's mines, for more than 30 years, and at no time prior to this accident did Mr. Thomas receive an injury in or around the mines of any consequence. Mr. Thomas was a man who was very careful; in fact, during this trip around the mine he had cautioned quite a number of his men to be careful and timber their places and keep their working places always safe. But this seemed to be one of the unforseen accidents.

On the 20th of April, 1901, Vinton Swesia, an employee of the Webster County Coal and Land company, at Lehigh, was in the act of loading a car of coal at the road head, when a piece of undermined coal along the wall fell on him, catching him on the left side; also a piece of roof, from above the coal, fell striking him on the head; causing internal injuries from which he died. His partner, Wm. Phillips, being duly sworn, testified that he spoke to him about the safety of the coal and roof, when the deceased expressed himself as thinking it was perfectly safe.

Walter Miller, who was working mining coal for the Carbondale Coal company's mine No. 2, was asked on the morning of April 29, 1901, to drive a mule, which he consented to do, and in the act of bringing his first trip down the 10th north he fell off the tail chain under the car and was dragged quite a distance. He was removed to the pit-top, and into the engine room, at which time they did not suppose he was badly injured. From there he was taken home and a doctor called. Upon examination it was found that he had received internal injuries, from which he died at 9:00 P. M. on the above date.

On the morning of June 14, 1901, at 11:30 A. M., John Jones was killed in a room turned off the 4th west entry on the north side of the Norwood Coal company's mine in the following manner: He had two shots to fire. One was tamped with fuse. Lighting them both at the same time and going out upon the entry, remaining there until he thought both shots had gone off,

as he said to a man on the entry. Upon entering the room to see what the shots had done, when he reached the vicinity of the shot tamped with fuse, it went off, and Mr. Jones was completely covered by the shot of coal; breaking several bones and injuring him internally, from which he died within two hours after being taken to the surface.

George Fox, who was acting in tne capacity as pit-boss for a short time, for the Gibson Coal company's mine No. 2, met with an accident at noon on May 6, 1900, in the following manner: He and some other employees were coming out for dinner, and a piece of rock on the entry fell catching Mr. Fox between the shoulders injuring his back, from which injury he suffered untold agony for several months, but finally dying from the effects of the same.

FATAL ACCIDENTS.

Table showing fatal accidents in District No. 3, for the biennial period ending June 30, 1901.

DATE.	NAME OF DECEASED.	OCCUPATION.	CAUSE OF CASULTY.	NAME OF COMPANY OR FIRM.	WHERE LOCATED.
August 16, 1899	Samuel Smith	Miner	Explosion of powder	Carbondale Coal Co	Carbondale.
September 12, 1899	Robt. Scollick	Miner	Fall of coal	Boone C. and M. Co	Incline, Boone Co.
September 26, 1899	Chas. Moll	Miner	Fall of slate	Carbondale Coal Co	Carbondale.
November 29, 1899	Jno. Marshall	Superintendent	Fell down shaft	Crow Coal Co	Boonsboro.
December 9, 1899	Jno. Salvage	Miner	Fell down Shaft	Carbondale Coal Co	Carbondale.
December 15, 1899	Jos. Kubic	Miner	Discharge of shot	Christy Coal Co	¼ mile Twp., Polk Co.
March 5, 1900	Jas Powell	Miner	Fall of slate	Avon Coal Co	Levy, Polk Co.
April 19, 1900	Wm. Channels	Laborer	Thrown under car	Des Moines C. and M. Co	Marquisville.
September 20, 1900	A. Windbush	Cager	Caught betw'n cage and timbers	Des Moines C and M. Co	Marquisville.
December 5, 1900	A. L. Johnson	Miner	Fall of slate	Carbondale Coal Co., No 3	Carbondale.
February 5, 1901	B. Logia	Miner	Fall of slate	Christy Coal Co	Youngstown.
April 13, 1901	Henry Thomas	Superintendent	Fall of slate	Jasper County Coal Co	Colfax.
April 16, 1901	V. Swesia	Miner	Fall of coal	Webster County Coal Co	Lehigh.
April 29, 1901	Walter Miller	Miner	Fell under car	Carbondale Coal Co	Carbondale.
June 14, 1901	John Jones	Miner	Fall of coal	Norwood Coal Co	Berwick.

NON-FATAL ACCIDENTS.

Table showing Non-Fatal Accidents in District No. 3, for the biennial period ending June 30, 1901.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	RESIDENCE.
July 7, 1899	Samuel Sage	Miner	Leg broken	Fall of slate	Colfax.
July 10, 1899	W. Finnagin	Miner	Shoulder	Fall of slate	Carbondale.
August 2, 1899	Thos. Cooper	Driver	Ribs squeezed	Fall of slate	E. of Des Moines.
August 11, 1899	J. W. Williamson	Weigh boss	Foot cut	Fall of coal	Des Moines.
December 9, 1899	J. McMinenny	Miner	Leg broken	Flying coal	Des Moines.
December 20, 1899	Chas. Peterson	Miner	Foot hurt	Brake on engine slipped	Saylor.
December 20, 1899	A. Wickland	Miner	Shook up	Brake on engine slipped	Saylor.
January 23, 1900	J. Sloan	Miner	Not serious	Flashshot	Carbondale.
April 12, 1900	Thos. Robinson	Miner		Fall of coal	Colfax
May 6, 1900	Geo. Fox	Pit boss	Back injured	Fall of rock	E. Des Moines.
May 15, 1900	A. Sekordi	Miner		Fall of slate	Colfax.
June 20, 1900	Wm Honuze	Driver	Leg fractured	Fall of slate	Fraser.
August 2, 1900	S. Lundstrum	Miner	Not serious	Fall of slate	Saylor.
August 20, 1900	N. G. Johnson	Miner	Broken leg	Fall of slate	Boone county.
September 22, 1900	C. Simonson	Driver	Bone in foot broken	Caught between cars	Lehigh.
	W. Birmingham	Miner	Ribs crushed	Fall of slate	Summit.
November 15, 1900	A. Frevethan	Miner	Ankle bone broken	Fall of slate	Colfax.
December 26, 1900	J. Sturdivant	Miner	Bone of leg cracked	Fall of slate	Lehigh.
December 29, 1900	Frank Harris	Miner	Wrist bone broken	Fall of slate	Saylor.
January 4, 1901	Creed Taylor	Miner	Two ribs broken	Fall of slate	Colfax.
January 22, 1901	David Morgan	Miner	Collar bone broken	Fall of slate	Des Moines Twp.
February 15, 1901	J. Atkinson	Brusher	Spine injured	Fall of slate	Fraser.
March 8, 1901	Eli Bgork	Miner	Back crushed	Fall of slate	N.E Des Moines.
April 19, 1901	Wm. Lewis	Miner	Leg broken	Shot from adjoining room	W. Des Moines.

POLK COUNTY.

The people of Iowa are largely an agricultural class, and Iowa, too, is above most states of the union as an agricultural producer. The mineral wealth, although superior to that of many other states, has not had the attention it merits. But in recent years especially her coal deposits have been attracting increased attention and capital, to such an extent that the coal industry of the state ranks it well up to the top of coal-producing states, and makes it the largest coal producer west of the Mississippi river.

The developed coal strata begins at Webster county, in the northwest part of the state, and continues southeast to the southern tier of counties, ranging in width from five to thirty miles.

Polk county, located nearly centrally in this belt, and owing to her superior railroad facilities and the great demand for local consumption which the city of Des Moines affords, probably surpasses most other localities. The theory existing in the minds of many people as to the extent and shape of the bodies of coal we will not discuss or trouble the reader with here. It is only necessary to say that the different large companies which are locating plants in this county, and the vast amount of drilling that is being done, from time to time, by large mining companies in the various parts of the county; also the large, well-equipped mining plants that are now in operation, some of them having an output of 1000 tons daily, only demonstrates that Des Moines, the county seat of Polk county and the capital of the state of Iowa, and much the largest city in the above state, is fast coming to the front as a manufacturing city; chiefly from the inexhaustible supply of steam coal so readily accessible.

On investigation of the various drillings that have been done from time to time, also the mines that are now in operation in the different parts of the county, we find that the most careful calculations show it has in the mean 50,000 acres of coal land. The coal under these broad acres varies in thickness from two and one-half to six feet; showing Polk county thus has, in round numbers, 152,000,000 tons of merchantable coal underlying its surface.

The mines are divided up in groups, and are located on the various railroads in such a way as to be able to divide their product to very good advantage. North of Des Moines, and within three miles of the city limits, we find two large modern equipped mines, located on spurs from the C. & N. W. R. R., known as the Des Moines and Saylor Coal and Mining companies. The Saylor company has one of the largest and most complete direct first motion engines now in use in the state, and has also placed a new 12x3½ foot fan within a year over its airshaft. Its main shaft is 225 feet deep; the employes in and around the mines number 264 men and boys; capacity 1000 tons. The Des Moines Coal and Mining company use mechanical

haulage, having in use an endless rope system, which transports a large portion of their coal more than three-quarters of a mile. Within a year their top landing, tipples and chute have been raised six feet higher and completely remodeled. For furnishing ventilation the company has two large improved fans, placed at each airshaft, one being located near the extreme end of the west workings; depth of main shaft 225 feet; employes working in and around the mine 285.

Northeast of Des Moines four to six miles, in conjunction with the C. G. W. R'y, is located the Maple Grove Coal company's mine No. 2, which mine has been in operation for several years. Above the Maple Grove mine the Norwood Coal and Mining company is operating the plant formerly owned by the Evans Coal company. It is completely overhauling the tower, cages, tipples, scales and fan. When completed the mine promises to be one among the large coal producers. What was known as the C. G. W. mine is being operated by a new company East of the city of Des Moines, near the edge of the city limits, the Gibson Coal company has its No. 3 mine, also on the C. G. W. R'y.

Five miles east of Des Moines there are three mines located on the C. R. I. & P. Ry., namely: The Christy Coal company's, and Lowe and Smith Coal company's mines Nos. 2 and 3. The Lowe and Smith mines were formerly operated by the Carbondale Coal company, and are located near Carbondale, employing 350 men.

The Christy mine has been in operation for a number of years, having hauled a large portion of its coal over three-fourths of a mile of track; it has in operation one among the best tail rope haulage systems in the state, which in former years was taxed to its capacity, for the mine was then quite a large coal producer. The depth of the coal from the surface in this locality varies from 130 to 200 feet. Veins of coal will average about 4½ feet in thickness. Employes in and around the mine number 125 men.

The Beck Coal and Mining company, operates a mine 3½ miles southwest of Des Moines, located on the Winterset branch of the C. R. I. & P. R, R. The Flint Brick Coal company operates a mine principally for its own use in connection with its brick plant; also ships considerahle coal over the street railway, which connects with the plant. The Co-operative Coal company has a mine located on the same street railway, and has also a very large local trade. There are a number of mines that have no railway connections, that do quite a large shipping business. The Bloomfield Coal and Mining company has one among the best equipped mines for local trade, and has a very large local business, besides the large amount of coal hauled from the mine and loaded on cars. It employs during the winter 175 men.

Northwest of the city limits of the city of Des Moines are located, within a radius of one mile of each other, the Keystone Coal company's mine No. 1, Eagle Coal company's mine, and Central Coal company's mine. Each have in its employ, during the winter season, from 60 to 125 men. While there is considerable coal loaded on cars from the mines, at least seventy-five per cent of their entire output goes to the local consumers within the city limits. Coal averages in thickness from 4 to 5 feet, and is found from 90 to 125 feet below the surface.

Glenwood has within the last year, opened a mine east of the city limits,

equipped the same for a large local business, and expects in the near future to have a switch from the C. R. I. & P. R. R.

There are within the county 30 mines, which mines, during the biennial period, produced 1,793,000 tons of coal, which gave employment to 1310 miners and 461 day men, making a total of 1770 men working in and around the mines. For their labor the miners were paid, during the period, $1,452,180, while the day men received $555,400, making a total paid out by the mining companies, of the county, $2,007,360; for the labor performed in and around the mines. During the last year of the biennial period there was paid out for props, tracking, etc., $36,940, and there were improvements made during the year to the amount of $59,870.

BOONE COUNTY.

The output of coal for the year ending June 30, 1900, was 281,180 tons; for the year ending June 30, 1901, 302,800 tons; making a total, for the biennial period, of 583,480 tons; giving employment, on an average, to 660 miners, and 260 day men; making a total of 920 men, which were employed in and around the mines. There was produced for each employe about 320 tons of coal per year. Taking into consideration the miners who mine coal only during the winter season, this certainly is an excellent average; moreover, a suspension of work at Fraser, during the early part of the first year, reduced the output to considerable extent.

There are several new shafts being put down, at this writing. They are being equipped with the latest improved machinery and, when thoroughly opened up, will increase the production of coal in Boone county considerably; especially, taking into consideration the large acreage of workable coal territory surrounding some of the large mining companies' plants.

The condition of the mines has been gradually improved, especially with regards to safety appliances, traveling ways, escape-shaft, safety-catches, and other devices for safety, which have in some instances been considerably improved.

The larger mines are controlled by the following companies: Boone Valley Coal & R. R. Co. has in operation two mines at Fraser; Nos. 1 and 3; is now equipping its No. 4 mine, and is laying the track up to the mine. This company has its own railroad connecting with the M. & St. P. at Fraser Junction, also with the C., R. I. & P. R. R. at Gowrie. The Boone Coal & Mining Co. operates Nos. 2 and 3 at Milford, four and one-half miles north-west of Boonsboro; and has shipping facilities over the C., N. W. R. R. The balance of the shipping mines lying west of Boonsboro all have C., N. W. connections. The W. D. Johnson, Crow, Zimbleman, and Heaps Coal companies, all being within a short distance of each other, one and one-half to three miles west of Boonsboro; employing from seventy-five to 150 men.

Coal in this section lies from 200 to 225 feet below the surface; averaging about three feet in thickness, and is of an excellent quality.

WEBSTER COUNTY.

Webster county lies the farthest north of all our coal producing counties. Coal was being mined in this county, in small drift mines, between 1855 and 1860, being more than forty years since the mineral was first discovered and mined in the county. Nine tenths of the coal that has been produced was from developments within a radius of six miles of Kalo, which town is located on the Des Moines river, six miles below Ft. Dodge; also within a radius of four miles of Lehigh. These are the only two points that coal has been mined, to any great extent, in the county, except at Coalville, which lies directly east of Kalo, which, at present, is quite a mining point. There was produced in this county, during the biennial period, 323,700 tons of coal, which gave employment to an average of 385 miners and 105 day men, making a total of 490 employes in and around the mines of Webster county. Within the county are twenty-four mines, twelve of which are equipped with steam hoisting appliances and equipments.

We find along the banks of the Des Moines river, which flows diagonally across the county, from northwest to southeast, coal-measures exposed at various points, showing that it is quite probable there is a large acreage of undeveloped coal within this county. While the coal is usually from two and one-half to three feet thick, it is of an excellent quality, and is mined on the longwall system. However, the Gleason Coal Co's. mine, located at Coalville, is working a six-foot vein; yet, the adjacent territory is usually thinner. The vein lies from 40 to 130 feet from the surface.

Some years ago practical investigation of the various geological formations, in this county, showed deposits of gypsum in paying quantities. Since then there have been several gypsum mines opened and mills built, and the product has gradually increased until they are now producing quite a large tonnage of the same. There are eight mines and mills, located within a radius of five and one-half miles of Ft. Dodge, producing gypsum and stucco under the following companies: Iowa Plaster Association, having in its employ 125 men; Duncombe Stucco Co., 35; Cardiff Gypsum Plaster Co., 40; Ft. Dodge Plaster Co., 30; Mineral City Plaster Co., 30; there being thus a of 290 men working in and around the gypsum mines and mills.

JASPER COUNTY.

Jasper county ranges fourth as a coal producer in the Third district. However, the amount of drilling that has been done during the last biennial period has clearly demonstrated that the best and the thickest coal is now being developed. The Jasper County Coal Co., which has quite a large acreage of coal-land, after drilling quite a number of holes located and opened its No. 5 shaft, three miles south of Colfax, being the first coal worked in this locality. Within the last fifteen months this company has done considerable drilling east of its No. 5 shaft, where a thicker and better quality of coal is found. At this place, one-half mile east of No. 5, the company has sunk its No. 6 shaft; which shaft is equipped with the latest improved machinery, and one of the J. M. Christy box car loaders. This plant employs about 270 men in and around the mine, and is connected with

the C. R. I. & P. R. R. and the C. G. W. R. R. by its own line of railroad, which line continues two miles farther east to where is located the Colfax Coal & Mining Co's. mine No. 1, which is a large well proportioned shaft sixty feet in depth and equipped with good machinery and mining facilities. This company has a large acreage of coal land adjoining its plant, where considerable drilling has been done, that will, no doubt, soon develop results. Since making this opening, the company has built quite a number of houses for its employees, and also made a number of improvements in the vicinity. With the addition to Jasper county of the Colfax Coal & Mining Co., which promises to soon be a large coal producer, there is no doubt that the county will, in a very short time, show quite an increased tonnage.

There was an average of 255 miners employed at mining coal during the past biennial period, also 70 day men; making a total of 325 men working in and around the various mines in the county. There was produced, during the past biennial period, 291,000 tons of coal.

DALLAS AND GUTHRIE COUNTIES.

The coal measures are very much alike in these counties. The coal seam now being worked, in the counties, lies in close proximity to the South and Middle Raccoon rivers and the Des Moines river, and is of about the same thickness, quality, and nature of the roof throughout the counties. The vein of coal now being worked is very often exposed along the banks of the rivers named. The coal is of a very good quality, being very hard, bright, and a free burner. There is quite a demand for coal at the various mines during the winter months. Coal sells at the mines for $2.50 per ton, and it often occurs, during cold snaps, that the mines are unable to supply the demands, for very few of our local mines make the necessary improvements to stock coal ready for the extra demand made on them; but where they do prepare for such they profit by it. Long wall method is used throughout the various mines. The largest mining plant, in these counties, is operated by the Carpenter Coal company, and is located midway between Madrid and Woodward, and 1½ miles south of the Milwaukee railway. This plant is equipped with an electric mining plant, and also with modern improved machinery, and has good shipping facilities, enabling the product to reach the northwestern markets for a less freight rate than those plants farther away.

GREENE COUNTY.

There are only six or eight mines in this county. They employ, during the winter months, about 80 to 100 men; during the summer season they mine some coal, which they haul to Angus and load on cars. Being near the northern market they have an advantage in freights. The largest expense in operating some of the mines near Angus is handling the water. The coal seems to be of a very bright nature and of good quality.

STORY COUNTY.

There is a decrease in the output of coal in this county, for the biennial period, owing to the abandonment of the mining plant located at Summit, which was operated by Benson Bros., of Boonsboro. This plant heretofore produced seven-tenths of the coal produced in the above county. The equipments connected with it have been moved into Boone county.

ADAIR COUNTY.

The mines of this county are small local mines that employ, during the winter season, from 4 to 8 men; usually beginning work about September 1st, or near the time local trade opens up, and continuing until spring. The coal is of an excellent quality, but only about 16 inches thick. Mining price is $1.50 per ton.

TABLE No. 1.

Showing the number of mines, output of coal, number of miners and other employes, etc., in District No. 3, for the year ending June 30, 1900.

NAME OF COUNTY.	Number of mines.	Number of tons of coal, all grades produced.	Number miners employed.	Number other employes.	Amount paid miners, including yardage, room turnage, etc.	Amount paid other employes, including cost of supervision, etc.	Amount paid for timber, tracking, etc.	Cost of improvements, etc., including air and escape shafts.	Average price paid for mining per ton, lump coal.	Average price paid for mining, per ton, mine run.
Polk...	36	854,500	1,235	446	$ 684,980	$269,000	$35,915	$ 66,945	89	59
Boone...	17	281,180	671	276	237,309	106,390	15,775	45,335	94	
Webster	18	156,400	389	98	144,380	76,640	9,135	12,980	96	62
Jasper..	16	159,200	257	66	118,850	43,857	6,340	1,730	90	60
Guthrie.	14	17,700	94	43	21,940	7,350	590	720	110	
Greene.	6	11,850	54	16	16 830	7,900	280	950	85	
Dallas..	7	18,090	63	29	27,135	8,610	390	1,850	93	
Story...	2	5,300	29	9	6,350	2,100	400	2,600	100	
Adair...	3	3,800	31	13	7,100	2,940	210	250	125	
Total..	119	1,508 020	2,823	996	$1,164,874	$514,787	$69,035	$133,360		

TABLE No. 2.

Showing the number of mines, output of coal, number of miners and other employes, etc., in District No. 3, for the year ending June 30, 1901.

NAME OF COUNTY.	Number of mines.	Number tons of coal all kinds produced.	Number miners employed.	Number other employes.	Total amount paid miners, including yardage, room turning, etc	Amount paid other employes, including cost of supervision, etc.	Amount paid for timber, tracking, etc.	Cost of improvements, etc., including air and escape shafts.	Average price paid for mining, per ton, lump coal.	Av. price paid for mining mine run coal, per ton.
Polk	36	938,610	1,320	478	$ 767,200	$276,400	$36,900	$ 59,870	$ .90	.....
Boone	17	302,800	645	290	272,520	151,430	16,540	37,650	1.03	.....
Webster	18	167,300	372	121	153,940	88,470	9,850	9,300	1.05	.....
Jasper	16	134,500	249	59	113,200	41,240	5,980	23,000	.91	.....
Dallas	7	29,400	86	35	39,250	11,750	6,240	5,450	1.20	.....
Guthrie	14	16,750	90	44	20,940	7,630	400	800	1.25	.....
Green	6	12,400	52	21	18,340	8,650	250	350	1.00	.....
Story	2	3,200	17	6	4,150	1,540	60	100	1.00	.....
Adair	3	2,740	14	5	3,200	1,130	40	100	1.50	.....
Total	119	1,607,690	2,845	1,059	$1,392,740	$588,240	$76,260	$136,570	.....	.....

TABLE No. 3.

Showing the output of coal of the counties comprising District No. 3 for the past five years.

COUNTIES.	1897	1898.	1899.	1900.	1900.
Adair	2,500	11,000	1,700	3,800	2,740
Boone	329,285	314,997	371,410	281,180	302,800
Dallas	16,781	12,400	13,600	18,090	29,400
Greene	17,085	21,900	22,600	11,850	12,400
Guthrie	11,340	16,000	16,400	17,700	16,750
Jasper	153,000	157,430	188,800	159,200	134,500
Polk	572,895	707,360	790,410	854,500	938,600
Story	12,240	9,010	9,600	5,300	3,200
Webster	101,643	143,832	187,650	156,400	167,300

A WORD REGARDING THE INTERESTS OF ALL CONNECTED WITH THE COAL BUSINESS.

The coal trade, and the production of coal, rest upon a triangular base and equilateral triangle; namely, labor, capital and transportation. Any one is indispensable to the other two; therefore it is of the utmost importance that all should work on lines of common or mutual interests, though each one occupies a separate and distinct field. Yet the ultimate purpose of all is the same. Labor produces, or rather mines, the coal; capital, through the owner or operator of the mine, is the medium or agent between the miner, or laborer, and the consumers. Capital also furnishes the transportation, making the transaction complete. And the consumer pays for the value he receives, which, if on an equitable basis, divided equitably between labor and capital and transportation, gives each a fair return for the part each performed in the transaction.

Any differences of opinion that are trivial should not be allowed to come

in the way of success from either base. Instead a generous policy should be adopted and maintained by all, to the end that all may be constantly employed; for inactivity on the part of either is fatal to the other two; or I might say to the other two and the consumer also. Therefore any vital change in either base should not be made independently without the careful consideration of the interests of the other two. Differences of this nature cannot be, or we should more properly say, are not, promptly settled. But it may be as well, for thorough discussion does not hurt a just cause, and an unjust cause is exposed by such discussion.

A healthy, thriving business for the operator means plenty of work and its emoluments to the miner. The two are mutually dependent. The operator could not exist and be a dealer in coal unless the miner aided him in producing it; neither could the miner enter the mine and dig coal and earn wages unless there was some one to furnish the mine and the machinery to run it.

In the event that the market does not justify the price paid for mining and transportation, the only alternatives are to lessen the price of production and transportation, to close down the mine, and when the receipts become inadequate to cover expenses to change the method of the business; for it is just as unreasonable to expect the mine to run at a loss, or in a manner that would ultimately bankrupt the operator, as it is to expect the miner to take his tools and go into the mine and dig coal for less than living wages, or at a price that would likely bring his family and himself to privation. Of course, the closing down of a mine should not be considered except as a last resort, as it unsettles business, not only while the mine is inoperative, but often is the effect obvious for many months; while its consequences are shared more or less by each individual who is dependent upon the work.

To the casual observer the adjustment of these vexed and varied questions is solely in the hands of the mine owners; but it is not so, for the laborer jointly has an interest at stake equal to if not greater than the operator's. Therefore the interests of the laborer cannot be successfully ignored. It is a fact, though not recognized by some, that labor, as a factor in the world's progress, has rights that cannot successfully be passed over, independent of the mere wages the individual receives. And we think it a safe proposition to say that the failure to recognize this fact is often the cause of strikes and so-called "labor troubles" in this country, as well as in Europe. For the fact has been demonstrated by experience in the manipulation of matters appertaining to the business that a digression of opinions, when in pursuit of the same object, seldom terminates with success, at least not with any degree of permanency, aud these disagreements, which occur between operator and miner, as a rule originate and are the outgrowth of wrong impressions and misunderstandings. Often there developes a feeling among the miners that the operator is exacting, his rules are too oppressive, and his dividends are greater than they should be. On the other hand, the operator attaches too little importance to the considerations of the miner, especially in relation to matters wherein the miner is directly concerned.

The operator, or capital, takes voluntarily the obligations and risk of furnishing the mine with all necessary equipments to operate it, and should have a fair return on the capital invested, and on the capital necessary to

pay for all labor performed, clerical and otherwise. But the miners and others that labor in and around the mines represent an equal interest jointly with that of the operator; and the risk to his life is more than equal to the capital, that is, the aggregate risk of the men.

Moreover, the situation of the miner, his work, and the surrounding conditions, with their attendant dangers, are of like importance; and when comparatively considered, with other kinds of labor, his hardships and endurances are more apparent, for when he takes his tools and miner's lamp and goes into the mine out of God's sunlight, to perform his arduous task, with the purpose in view of earning an honest dollar; he has no assurance whether he will walk out or be carried out, for his dangers are many and often not apparent. Even the precautionary measures of the mining laws are not always effective in averting casualties.

Although the official requisitements upon the operator are principally in the miner's interests, for his preservation and protection; and notwithstanding, he may be diligent and observant in the pursuance of his duties regarding sanitation, and the safe condition of the mine; yet there are many dangers unforseen, and frequently accidents happen from causes that are almost unaccountable; evidencing the fact, that in the coal mine danger lurks in every entry, drive-way, and room. No matter how much discretion or cautian the miner may exercise for his own protection, he is always liable to accidents that come without warning, and probably from an unexpected source, with fatal results or the laming for life. And very often the unfortunate is the husband and father of a family, that are dependent, and likewise are forced to bear the burden of distress. Thus the exposure and risk of the miner in connection with his labor, undoubtedly entitles him to a consideration in the councils that govern his conditions, and regulate the price of his labor; which was formerly denied him. But, now he is receiving the share of attention, in part at least, that is his due. And we are pleased to note the fact that those operators who the most fully recognize the equitable rights of labor as entirely independent of the individual are the best pleased with their business, and have the full confidence and respect of their men, without which, no business can be successfully conducted any length of time.

The stability of the business is dependent on, and can be regulated only by propositions that have their origin in, and are actuated by a joint representative council. For unquestionably confidence is the only reliable agency of medium that can reconcile the interests of miners and operators when any differences arise, and place them on a substantial basis with harmony. At least it is evident that strikes emanating usually from the impulsive and unpromising element of organized labor, and always from lack of confidence in the operator, have never been very effective in establishing favorable results. Nevertheless, organized labor is necessary and needful to a certain extent, and very advantageous if properly managed, but when controlled by rash and indiscreet persons, that are guided more or less by outside influences, it becomes a menace to business and in the main dominative and arrogant; and tends to compel capital to combine for protection, thereby widening the breach between miner and operator; who otherwise should be united in common efforts for the purpose of contributing to the welfare of the coal industry. Full confidence in, and respect for each other, by the

operators and men, also by and between the transportation companies and all other business, come under the same rule, and would entirely overcome great evils (for it is surely nothing less), and strikes and lockouts would be unknown.

Exercise tolerance and moderation in the light that each has rights that the other should respect, keeping in view at all times the fact that the man who furnishes the muscle, strength, and intellect to mine the coal should be credited in their business relations as the equal of the man who furnishes the capital and enterprise to build and operate the mine.

Operators, miners, and transportation companies should all banish prejudice; avoid competition, as regards both wages, freight, and markets; endeavor to establish confidence in the trade commercially; and promote and protect home markets in the interest of miners and mine owners. All general business appertaining to the coal trade would be appreciative of its beneficial results. For, beyond a doubt, the inauguration of these principles and a practical demonstration of their motives would culminate in success.

FIRST DISTRICT.

	TONS
For year ending June 30, 1900	1,679,050
For year ending June 30, 1901	1,964,050
For the two years	3,643,100
Miners June 30, 1900	3,762
Other employees June 30, 1900	1,406
Total number employees June 30, 1900	5,168
Miners June 30, 1901	3,906
Other employees June 30, 1901	1,396
Total number employees June 30, 1901	5,302
Average number of employees for the two years	5,235

SECOND DISTRICT.

	TONS
For year ending June 30, 1900	1,930,214
For year ending June 30, 1901	1,870,123
For the two years	3,800,337
Miners June 30, 1900	2,785
Other employees June 30, 1900	1,269
Total number employees June 30, 1900	4,054
Miners June 30, 1901	2,734
Other employees June 30, 1901	1,235
Total number employees June 30, 1901	3,969
Average number of employees for the two years	4,012

THIRD DISTRICT.

	TONS
For year ending June 30, 1900	1,508,020
For year ending June 30, 1901	1,607,690
For the two years	3,115,710

Miners June 30, 1900	2,823
Other employees June 30, 1900	996
Total number employees June 30, 1900	3,819
Miners June 30, 1901	2,845
Other employees June 30, 1901	1,059
Total number employees June 30, 1901	3,904
Average number of employees for two years	3,862

ELEVENTH BIENNIAL REPORT

OF THE

STATE MINE INSPECTORS

TO THE

GOVERNOR OF THE STATE OF IOWA.

FOR THE

Two Years Ending June 30, 1903.

JOHN VERNER, District No. 1.
EDWARD SWEENEY, District No. 2.
JAMES W. MILLER, District No. 3.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

DES MOINES:
BERNARD MURPHY, STATE PRINTER.
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Exam. dist. of Cong. 19 Feb. 1908.

REVIEW OF STATISTICS REGARDING MINING IN IOWA

For the Two Years Ending June 30, 1903.

The coal mining industry of Iowa made greater advance during the last two years than during any like period of time since mining commenced in the state. The year ending June 30, 1903, was especially prosperous and established a new record in the annual amount of coal produced. For the first time the annual coal production in the state exceeded 6,000,000 tons.

The following tables give a summary of the number of mines in the three inspection districts, their coal output and number of men employed.

Number mines in each district, their coal output, number of miners and other employes for the year ending June 30, 1902.

DISTRICT.	Number of mines.	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
Number 1	119	2,318,595	4,161	1,776	5,937
Number 2	97	1,542,519	2,266	921	3,187
Number 3	118	1,653,152	2,882	996	3,878
Total	334	5,514,206	9,309	3,693	13,002

Number of mines in each district, their coal output, number of miners and other employes for the year ending June 30, 1903.

DISTRICT.	Number of mines.	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
Number 1	124	2,883,675	4,355	2,004	6,359
Number 2	97	1,466,603	2,133	1,009	3,142
Number 3	92	1,865,456	2,681	1,010	3,691
Total	313	6,185,734	9,169	4,023	13,192

Number of mines in operation in each county, their coal output, number of miners and other employes for the year ending June 30, 1902.

Number.	COUNTY.	Number of mines	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
1	Monroe	16	1,268,973	1,779	812	2,591
2	Polk	30	981,610	1,264	467	1,731
3	Mahaska	26	734,885	962	438	1,400
4	Appanoose	68	733,973	1,752	715	2,467
5	Wapello	13	318,929	414	214	628
6	Marion	18	303,042	500	147	647
7	Boone	17	286,300	680	211	891
8	Lucas	4	235,468	289	160	449
9	Jasper	17	232,000	358	95	453
10	Keokuk	15	138,880	248	78	326
11	Webster	16	132,477	255	130	385
12	Wayne	8	45,950	133	53	186
13	Dallas	7	34,750	83	38	121
14	Scott	12	28,973	106	18	124
15	Warren	10	21,435	60	19	79
16	Taylor	7	20,556	83	17	100
17	Guthrie	12	17,250	121	39	160
18	Van Buren	7	16,713	42	15	57
19	Greene	4	16,192	46	16	62
20	Adams	12	11,765	100	12	112
21	Jefferson	4	4,785	22	6	28
22	Davis	4	3,850	18	4	22
23	Story	1	2,200	9	3	12
24	Page	4	1,850	25	7	32
	Total	334	5,514,206	9,309	3,693	13,002

Number of mines in operation in each county, their coal output, number of miners and other employes for the year ending June 30, 1903.

Number.	COUNTY.	Number of mines	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
1	Monroe	19	1,600,148	1,758	1,081	2,839
2	Polk	25	996,573	1,127	488	1,635
3	Appanoose	70	892,692	1,889	610	2,499
4	Mahaska	26	678,826	929	453	1,382
5	Wapello	13	365,165	506	259	765
6	Jasper	13	323,312	508	182	700
7	Marion	18	293,875	400	175	575
8	Boone	12	288,055	480	165	645
9	Lucas	3	269,539	327	202	529
10	Webster	10	159,990	280	104	384
11	Keokuk	15	82,532	156	70	226
12	Wayne	8	74,542	185	65	250
13	Taylor	8	20,618	74	22	96
14	Warren	10	20,265	65	25	90
15	Dallas	6	19,990	75	35	110
16	Van Buren	7	18,740	52	20	72
17	Scott	7	18,280	80	12	92
18	Guthrie	13	16,545	75	15	90
19	Adams	12	16,462	85	16	101
20	Greene	6	12,711	56	9	65
21	Page	4	9,674	37	8	45
22	Jefferson	4	4,000	13	3	16
23	Davis	4	3,200	12	4	16
	Total	313	6,185,734	9,169	4,023	13,192

ACCIDENTS.

During the year ending June 30, 1902, fifty-five fatal and seventy-nine serious accidents occurred in the mines of the state. The exceedingly large number of fatal accidents is a matter of much regret, and was due principally to a number of disastrous mine explosions which occurred during that year. Twenty-nine deaths were caused through blasting operations. A summary for the three districts follows:

DISTRICT NO. 1.

Number of fatal accidents, 11.
Cause of accidents:

Falls of slate or coal	6
Crushed by railroad car	1
Explosion	4

DISTRICT NO. 2.

Number of fatal accidents, 31.
Cause of accidents:

Falls of slate or coal	9
Struck by flying coal from shot	1
Caught between cage and shaft	1
Explosion	20

DISTRICT NO. 3.

Number of fatal accidents, 13.
Cause of accidents:

Fall of slate or coal	7
Struck by coal flying from shot	4
Falling down shaft	1
Caught under pit car	1
Total	55

SERIOUS ACCIDENTS.

District No. 1	25
District No. 2	35
District No. 3	19
Total	79

During the year ending June 30, 1903, twenty-one fatal and fifty-eight serious accidents were reported. No lives were lost through explosions and the record for that year is very gratifying when compared with the record of

previous years. The shot examination law was certainly a large factor in preventing loss of life, and its enactment has proved a blessing to the operators and miners of Iowa.

DISTRICT NO. 1.

Number of fatal accidents, 11.
Cause of accidents:

Struck by timber	1
Fall of slate or coal	8
Premature explosion of dynamite	1
Caught under pit car	1

DISTRICT NO. 2.

Number of fatal accidents, 5.
Cause of accidents:

Fall of slate	3
Falling down shaft	1
Caught under pit car	1

DISTRICT NO. 3.

Number of fatal accidents, 5.
Cause of accidents:

Fall of slate	3
Falling down shaft	1
Struck by coal flying from shot	1
Total	21

SERIOUS ACCIDENTS.

District No. 1	27
District No. 2	18
District No. 3	13
Total	58

Fatal and serious accidents in the mines of the state during the year ending June 30, 1902, with relation to coal produced and number of employes.

DISTRICTS.	NUMBER OF ACCIDENTS.		NUMBER OF TONS OF COAL PRODUCED.	TONS OF COAL PRODUCED FOR EACH ACCIDENT.		NUMBER OF EMPLOYES.	NUMBER OF EMPLOYES FOR EACH ACCIDENT.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
District No. 1.	11	25	2,318,535	210,776	92,741	5,937	539	237
District No. 2.	31	35	1,542,519	49,758	44,072	3,187	103	92
District No. 3.	13	19	1,653,152	127,165	85,005	3,878	221	204
Total...	55	79	5,514,206	100,258	69,802	13,002	236	164

Fatal and serious accidents in the mines of the state during the year ending June 30, 1903, with relation to coal produced and number of employes.

DISTRICTS.	NUMBER OF ACCIDENTS		NUMBER OF TONS OF COAL PRODUCED.	TONS OF COAL PRODUCED FOR EACH ACCIDENT.		NUMBER OF EMPLOYES.	NUMBER OF EMPLOYES FOR EACH ACCIDENT.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
District No. 1.	11	27	2,883,675	262,152	106,803	6 359	578	235
District No. 2.	5	13	1,466,603	293,320	81,478	3,142	628	173
District No. 3.	5	13	1,835,456	367,091	125,804	3,691	738	284
Total.....	21	58	6,185,734	294,559	106,650	13,192	628	227

BIENNIAL REPORT OF THE

FIRST DISTRICT

EMBRACING THE COUNTIES OF

MONROE,	APPANOOSE,
LUCAS,	WAYNE,
TAYLOR,	PAGE.
ADAMS,	

JOHN VERNER, INSPECTOR.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit to you herewith the report of the First Inspection District, covering the biennial period ending June 30, 1903.

Very respectfully,

JOHN VERNER,

Inspector First District.

REPORT OF FIRST DISTRICT.

My work as inspector of the first district, comprising the counties of Monroe, Appanoose, Lucas, Wayne, Taylor, Page and Adams, commenced April 1, 1902. As I was fairly well acquainted with the conditions in nearly all the mines in the territory assigned me I had few of the difficulties to overcome that come to a mine inspector in commencing in a field he knows little about. From April 1, 1902, to June 30, 1903, 283 inspections were made and twenty-three scales were tested, and I am pleased to be able to report that appreciable progress was made in that time in improving the mines and their equipments. The improvements made in and about the mines of the district, of which more will be said later on, have been extensive and valuable, and it is a pleasing feature that the operators as well as the miners shared in the benefits that have come from them.

The mining industry of the district has not suffered or been disturbed by strikes or lockouts. The relations between operators and miners have been friendly, and the yearly agreement between them as to wages and labor conditions practically removed the elements likely to bring discord.

The coal production of the district was very much larger during the last two years than during any like period of time in the past. Last year especially showed substantial gains. The cessation of work in the anthracite mines during the summer of 1902 had undoubtedly considerable influence in stimulating the coal trade in this territory. It seems unlikely that all the trade that came to the Iowa coal operator on that account can be retained in the future, but it appears reasonably certain that the advantage gained will prove a fairly permanent one, and that a considerable number of those who purchased Iowa coal last year through force of circumstances have found out that it is a very fair fuel after all, and will remain willing customers in the future.

The prospect for the future development of the coal wealth of the district appears to be good. A number of new mines have been opened recently, others are being developed now and the opening of others will commence soon. The prospecting for new coalfields is carried on with greater activity than ever before.

The coal mined in the district during the year ending June 30, 1903, amounted to 2,883,675 tons, exceeding that of the preceding year by 565,140 tons. This output came from 124 mines giving direct employment to 6,359 persons. Every county in the district showed a gain in coal production; in some counties the gain was small, in others quite marked. The gain was mainly due to the more steady operation of the mines last year and the correspondingly increased production by the individual miner. In Monroe county the annual output of coal per miner was raised from 713 tons (mine

run), for the year ending June 30, 1902, to 910 tons for last year. In Appanoose county the output of the individual miner reached 472 tons (lump) last year as against 419 tons in the year preceding. The Lucas county mines showed 824 tons of coal (mine run) per miner last year. The year before the average was 814 tons. In Wayne county the output increased from 345 tons (lump), year before last, to 403 tons last year.

The following tables give the number of mines in the counties comprising the district, their coal output and the number of persons employed in the coal industry:

Number of mines in operation in each county, their coal output, number of miners and other employes in District No. 1 for the year ending June 30, 1902.

COUNTY.	Number of miners.	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
Monroe	16	1,268,973	1,779	812	2,591
Appanoose	68	733,973	1,752	715	2,467
Lucas	4	235,468	289	160	449
Wayne	8	45,950	133	53	186
Taylor	7	20,556	83	17	100
Page	4	1,850	25	7	32
Adams	12	11,765	100	12	112
Total	119	2,318,535	4,161	1,776	5,937

Number of mines in operation in each county, their coal output, number of miners and other employes in District No. 1 for the year ending June 30, 1903.

COUNTY.	Number of miners.	Tons of coal of all grades produced.	Number of miners employed.	Number of other employes.	Total number employed.
Monroe	19	1,600,148	1,758	1,081	2,839
Appanoose	70	892,692	1,889	610	2,499
Lucas	3	269,539	327	202	529
Wayne	8	74,542	185	65	250
Taylor	8	20,618	74	22	96
Page	4	9,674	37	8	45
Adams	12	16,462	85	16	101
Total	124	2,883,675	4,355	2,004	6,359

Increase or decrease in the number of mines, etc., for the year ending June 30, 1903, in comparison with the year ending June 30, 1902.

COUNTY.	NUMBER OF MINES.		TONS OF COAL OF ALL GRADES PRODUCED.		NUMBER OF MINERS.		NUMBER OF OTHER EMPLOYES.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
Monroe	3	.....	331,175	.....	.....	21	269	.....
Appanoose	2	.....	158,719	.....	137	.....	.....	105
Lucas	.....	1	34,071	.....	38	.....	42	.....
Wayne	.....	.....	28,592	.....	52	.....	12	.....
Taylor	1	.....	62	.....	.....	9	5	.....
Page	.....	.....	7,824	.....	12	.....	1	.....
Adams	.....	.....	4,697	.....	.....	15	4	.....
Total	5	.....	565,140	.....	194	.....	228	.....

Coal production in tons of the counties now comprising the first district, for the last six years.

COUNTY.	1898.	1899.	1900.	1901.	1902.	1903.	TOTAL.
Monroe	590,300	662,500	641,928	937,750	1,288,973	1,600,148	5,701,599
Appanoose	421,100	444,282	645,282	650,400	739 973	892,692	3,787,729
Lucas	10,800	12,800	133,196	249,803	235,468	269,539	911,606
Wayne	41,200	48,300	48,800	50,200	45,950	74,542	308,992
Taylor	11,800	14,100	22,682	20,400	20,556	20,618	110,156
Page	5,050	6,085	.....	1,700	1,850	9,674	24,359
Adams	21,300	22,800	16,370	18,381	11,765	16,462	107,078
Total	1,101,550	1,120,867	1,508,258	1,928,634	2,318,535	2,883,675	10,951,519

MINES OPENED AND MINES ABANDONED IN THE LAST TWO YEARS.

MONROE COUNTY.

MINES OPENED.	MINES ABANDONED
No. 4. Wapello Coal Co.	No. 1. Wapello Coal Co.
No. 1. Excelsior Coal Co.	Frederic, Smoky Hollow Coal Co.
No. 6. Phillips Fuel Co.	No. 1. Deep Vein Coal Co.
No. 2. Miller Creek Coal Co.	
No. 3. Miller Creek Coal Co.	

APPANOOSE COUNTY.

Oriental Coal Co.	Economy Coal Co.
Exline Coal Co.	No. 7. Centerville Block Coal Co.
No. 7. Peerless Coal Co.	
No. 30. Manufacturers Coal and Coke Co.	

LUCAS COUNTY.

Inland Fuel Co.	Lucas & Cleveland Coal Co

WAYNE COUNTY.

E. A. Sipes.	
No. 2. L. Frye.	

TAYLOR COUNTY.

No. 2. Campbell Coal Co.	

PAGE COUNTY.

Johnston & Company.	
Winger Bros.	
I. Vanarsdal.	

CONDITIONS OF THE MINES WITH REGARD TO THEIR SAFETY.

It seems unnecessary to give the conditions existing at each mine in detail, as that already has been done in the monthly reports made by me to the Governor. In a general way it can be stated, however, that a commendable spirit has been shown on the part of most operators to get their mines in such condition, that mining may be carried on in them as safely as possible. The men selected by them to handle machinery and look after the safety of the mine workers have proved themselves generally competent and reliable. The traveling roads were fairly well looked after, and the fact that not a miner, while passing through them in going to or returning from his working place, was injured during the last two years, showed that such was the case. In a number of mines, having mechanical haulage, separate traveling ways have been provided, to be used during working hours while the haulage system was in motion. The roads leading to the escapes have been kept reasonably safe and unobstructed. The escapes, however, and especially the shafts, were not found always in available condition, due to the accumulation of ice in them during the winter season. While it may be difficult to prevent ice forming in some of these shafts, they could have been kept ready for use any time, even in the coldest weather, if only timely attention had been given to the matter and the necessary work had been done to keep them open.

The safety devices provided for by the mining law, have been found in most cases to be in satisfactory condition, and no accident of a serious nature occurred in the last two years owing to the absence or defectiveness of these devices. This does not mean, however, that they were always in good working order at every mine. In the few cases noticed, where any of the devices were found out of order, the neglect to keep them in repair appeared to be due to the fact that no one in particular was charged with looking after them. In above instances, and whenever occasion seemed to require it, I admonished the hoisting engineers in charge, that I should hold them responsible for the safe and reliable condition of the whole hoisting apparatus from the engine to the cage and its appurtenances, and that I considered it their business to know that every single part of the apparatus was in perfect working order, so men could be lowered and hoisted with the utmost safety. The law to license hoisting engineers was evidently enacted to provide better protection to life. The state of Iowa, through the board of examiners, declared the men receiving such license to be competent to bring about this result and as the state has assumed a certain responsibility in this matter, it and the people directly interested have a right to expect good service to that end. Such service can be rendered only by the engineer having full control of the whole hoisting apparatus and by his being held responsible for the reliable working of all its parts.

MINE VENTILATION.

Of twenty-seven mines with an output of more than 25,000 tons of coal each last year, twenty-six were ventilated by fans and one by furnace. Of the forty-six mines with a yearly output of from 5,000 to 25,000 tons each, eighteen were ventilated by fans, twenty-six by furnaces and two by steam jets, and of the mines with an output of less than 5,000 tons, one had fan ventilation, many had small furnaces, while some of the small country mines, working only during the winter, depended on natural ventilation. I am pleased to be able to state that, in a general way, appreciable progress has been made during the last year to improve the ventilation of the mines of this district. Air courses have been cleaned and enlarged, at some mines better ventilating machinery has been provided and at others additional air shafts have been sunk. In this connection it can be said that very creditable work has been done by some of the operators. Since July 1, 1902, four air shafts have been sunk to improve the ventilation of mines that had been in operation for some years, four others of this class were commenced and will be completed at an early date, while eight air shafts were sunk for mines recently opened, making a total of sixteen of these shafts provided in the last year.

Improvements in mining conditions are necessarily of slow growth, and their need is often not sufficiently appreciated, but in the matter of mine ventilation I believe it can be truthfully said that the operators of this district realize more and more that, apart from the human view of the case, efficient ventilation of their mines is a very desirable thing to have, because it really is a good investment bringing fair returns on the money paid out to secure it. The work now going on or contemplated in this direction in the district, indicates that a material improvement in mine ventilation may be expected in the near future.

SCALES.

Of the twenty-three scales tested since April 1, 1902, some were not found in satisfactory condition, but they were either adjusted to weigh accurately or were replaced by new scales. Several track scales were taken up this summer, while the coal trade was dull and the work could be done with the least loss to all concerned, sent to the factory and thoroughly overhauled, adjusted and replaced by competent men, so it appears that, for the time being at least, the coal weighing apparatus of the district is in very fair shape.

SHOT EXAMINERS.

The shot examination law, enacted by the Twenty-ninth General Assembly, became effective April 17, 1902. By May 1st provisions had been made at all the mines in the district affected by the law, so the shots prepared in them could be examined by competent persons. In order to help these men to do their work as effectively and with as much uniformity as possible, the following circular was prepared and mailed to them.

To the Shot Examiners of the First Inspection District of Iowa:

"In all mines, where coal is blasted from the solid, competent persons shall be employed to examine all shots before they are charged. Said examiners to have the power to prohibit the charging and firing of any shot which, in their judgment, is unsafe. Before entering upon the discharge of their duties, said examiners shall give proof of their competency to the state mine inspector of the district in which the mine, where they are employed, is located, and said inspector shall certify to the operator of each mine the persons who have given proof of their competency to act in the capacity of shot examiners. The state mine inspector to have the power to refuse to give permission to any person to act as shot examiner who, in his judgment, is not sufficiently competent; or he may revoke the permission granted, should it appear that a shot examiner is negligent or careless in the performance of his work."

This is the law relating to shot examination passed by the Twenty-ninth General Assembly of Iowa. Under the present mode of mining the coal in this state by the use of powder, it would be difficult to construct a law on shot examination which promises better results and a greater measure of safety than the above. It centers the responsibility on the few; it gives the inspector the right of selection and removal; it gives the shot examiner freedom of action, which perhaps would be lacking sometimes, if the unrestricted right of selecting shot examiners remained with the operator, and I am sincere in the belief that, if you do your duty fairly and fearlessly, there is reasonable assurance that the danger from explosions will not only be successfully overcome, but a greater efficiency of workmanship will result.

Reasonable speed in examination of shots is desirable, but thorough and careful work is essential. You should commence your work as early in the day as circumstances will permit. Gain and hold the confidence and respect of the miners by your fairness, impartiality and firmness. If you have occasion to reject a shot as prepared, which you might accept if some additional work were done on it or some alteration made, tell the miner what should be done to make the shot acceptable, and if he is willing to follow your advice, reward his willingness by visiting his place again before firing time and pass the shot, if it has been prepared as you directed. If in the above case the miner is unwilling to do as you request, do not stop to argue the case, but reject the shot and pass an to the next place.

In examining a shot take into consideration the depth and direction of the hole, the size and shape of the shot, the condition of the coal, roof and bottom, the location of the hole with regard to remaining parts of previously fired holes, cracks and fissures made by them, the location of the hole with regard to adjoining working places and the amount of powder to be used. By making inquiry as to the amount of powder to be used, it is not intended that you should determine the size of the charge; that part should be left largely with the miner, but you should be informed about it, so you can determine whether the charge is safe or not.

A shot may be termed safe when there is reasonable assurance that the force and heat due to the explosion of the powder will be used up almost completely in the removal of the coal or other material; a shot may be considered dangerous when it appears that in all probability the major portion of the force and heat developed by the powder's explosion will not be so used up, but be projected into the dust-laden mine air in the immediate vicinity of such shot, with results that may prove disastrous.

To be more definite, however, your attention is called to the following shots; some of them should be rejected outright, and the others should share the same fate if, in your judgment, danger is likely to come from them:

1. A hole which has blown the tamping must not be recharged and fired again. The dangerous character of such shots was recognized by the recent conference of the miners and operators in Des Moines, and in their yearly agreement they condemned them as unsafe.

2. A hole drilled near the remaining part of an old hole or cracks and fissures made by previously fired shots, if there is danger of the force and flame of the charge finding ready vent through such part of an old hole, crack or fissure, must not be fired.

3. A hole located along the rib should receive your careful attention. If it is drilled in such manner that there is probability of the force of the charge being projected into the adjacent working place, it is a dangerous shot and must be rejected.

4. A shot measuring more across the point than the height of the material to be removed, especially if the hole is gripping, is in most cases not only unprofitable to the miner, but more or less dangerous and should not be accepted.

5. Holes drilled parallel with the cut in narrow work should not be drilled ahead of the back of the cut. It is true that under favorable conditions such shots have been fired without bad results, but in order to accord all as uniform treatment as possible and to relieve you of unnecessary responsibility you should invariably reject them.

6. A shot following another and depending on the success of the first is an indication of lack of skill on the part of the miner in working his place properly, and I advise you to reject such shots. In mines where the practice prevails of drilling sump holes to relieve the heavier top shots, such top shots depending on properly located sump shots may be accepted, provided that the shots are not fired together and that the top shot cannot be fired should the sump shot fail to do its work.

7. Holes drilled parallel with the plane of stratification, especially if the coal contains smooth and frequent partings, are not safe holes on account of the possibility of an easy release of the charge by having only to remove the thin layer of coal between such partings.

8. An improperly or insufficiently tamped hole is dangerous, and you will insist that the miner use the kind of tamping prescribed in the Des Moines agreement and that he tamp the hole firmly from the powder to its mouth. The matter of properly tamping the holes is an important factor in promoting safety at firing time, and I urge you to see to it that the provisions of the agreement with regard to tamping are strictly carried out.

9. Short holes, holes over or behind a bowlder, breaking down shots in narrow work, slim shots, shots with slight heels and thickening rapidly towards the point and shots with obstructions in either top or bottom, should receive your careful attention, and you should be fully convinced of their safe character before you accept them.

The number of shots that may be fired in one working place must be determined by local conditions. It is advisable, however, that not more than two coal shots be prepared in entries or in rooms not fully opened. If

more than one shot be fired in a place, provisions must be made so the shots will not go off at the same time.

Pure air is essential to the formation of a "dust" explosion. You will therefore be particularly careful in your work in that part of the mine where the ventilation is especially efficient. Experience has brought out the fact that on account of superior ventilation and for other reasons dry dip workings provide very favorable conditions for the starting of a "dust" explosion, and for that reason you should exercise great care in the examination of shots in such workings.

Remember that lack of room for the rapid expansion and dissipation of heat produced by the firing of a risky shot carries with it an element of danger, which must not be underestimated. You can do much to eliminate this element of danger by careful work on your part.

Aside from your supervision over placing and preparing of shots, it is your duty to see that accumulations of dust in the working parts of the mine are prevented as far as practicable, and that the working entries and all other places, which in your judgment need it, are sprinkled and kept in damp condition.

You will keep a brief record of all shots rejected by you, naming entry, number of room and cause of rejection. Should there be a windy shot in the territory under your charge, make a personal investigation as to its cause.

As far as your qualifications to do the work acceptably could be established by examination and inquiry, you have given satisfactory proof that you are well qualified. Knowing how to do the work right and doing it right are not, however, synonymous terms. I hope in your case your actions will show that there was no mistake made in choosing you as shot examiners. and that you will fill the responsible position with credit to yourselves and with benefit to the miner and operator. If I find that a shot examiner is careless or negligent in the performance of his work, I shall withdraw his name from the certified list, but I trust there will be no occasion to make this necessary.

In conclusion, I will say that if you will act in accordance with the above suggestions and in addition carefully read the report of the commission on explosions in Iowa, a copy of which will be sent you, if you not already have one, and apply the knowledge gained from its perusal in a practical way your work will prove an almost sure preventive for future explosions in the mines of the first district.

JOHN VERNER,
Inspector District No. 1.

The Iowa shot examination law has been in force for fifteen months, it has passed the experimental stage and the benefits gained by its enactment have been fully established. This desirable result was largely due to the fact that the operators and miners of the state have labored together to make the law a success. The miners realized that adequate protection to life and property could not be provided by the operators alone and that their own assistance was needed to help bring it about. They have given that

assistance and have been doing their share in securing an increased measure of safety in mining, and the gratifying success attained so far is a pleasing indication that co-operation in this direction has come to stay.

ACCIDENTS.

During the year ending June 30, 1902. eleven fatal accidents occurred in and about the mines in this district, and twenty-five serious accidents were reported to this office. Of the eleven fatal accidents, ten occurred in the mines and one outside; of the former, four were due to explosions and six were caused by falls of rock or coal. The majority of the serious accidents occurred at the working face and were due to falls of rock or coal.

In the year ending June 30, 1903, eleven fatal and twenty-six serious accidents were recorded. Three of the fatal accidents occurred on the entries, five miners lost their lives at the working face through falls of slate or coal, and one was killed by a premature explosion of dynamite. The last is the only instance of loss of life in this district through the use of explosives since the passage of the shot examination law in April, 1902. It was one of the few accidents that can be termed unavoidable. The man killed was one of the most careful miners in the employ of the Wapello Coal company. The dynamite evidently exploded in his hands while he was preparing it for charging a hole, but the cause of its exploding will never be known. In none of all the above accidents could any proof be found indicating that they had been caused through lack of care or non-compliance with the provisions of the mining law on the part of the management of the mines where they occurred. The following tables give the accidents in detail and their relation to the output of coal and number of men employed:

Fatal accidents in District No. 1, July 1, 1901–June 30, 1902.

DATE.	NAME OF DECEASED.	OCCUPATION.	CAUSE OF DEATH.	EMPLOYED BY—	COUNTY.
July 19, 1901	James Hall	Miner	Fall of coal	Hocking Coal Co.	Monroe.
July 23, 1901	John Young	Miner	Fall of slate	Hocking Coal Co.	Monroe.
September 24, 1901	R. Collingwood	Driver	Fall of coal and rock	Big Hill Coal Co.	Lucas
October 22, 1901	Geo. Robinson	Shotfirer.	Explosion	Whitebreast Fuel Co.	Monroe.
December 18, 1901	John E. Grimes	Miner	Fall of slate	Star Coal Co.	Monroe.
December 31, 1901	Albert Olds	Pusher	Fall of rock	W. S. Ellenwood	Adams.
January 7, 1902	A. B. McDowell	Shotfirer.	Explosion	Whitebreast Fuel Co.	Lucas.
January 29, 1902	Jas. Bender	Timberman	Fall of slate	Whitebreast Fuel Co.	Monroe.
February 7, 1902	Alf. Rockhold.	Night watch	Crushed by railroad car	Whitebreast Fuel Co.	Lucas.
February 18, 1902	Nels Rogers	Shotfirer.	Explosion	Hocking Coal Co.	Monroe.
February 18, 1902	W. C. Palmer.	Shotfirer.	Explosion	Hocking Coal Co.	Monroe.

Table of fatal accidents in District No. 1, July 1, 1902–June 30, 1903.

DATE.	NAME OF DECEASED.	OCCUPATION.	CAUSE OF DEATH.	EMPLOYED BY—	COUNTY.
July 19, 1902	John H. Evans	Timberman	Struck by timber	Inland Fuel Co.	Lucas.
August 16, 1902	S. Strather	Timberman	Fall of slate	Whitebreast Fuel Co.	Lucas.
September 11, 1902	Geo E Howe.	Miner	Fall of coal	Peacock Coal Co.	Appanoose
October 27, 1902	A. Bowdre.	Miner	Fall of slate	Smoky Hollow Coal Co	Monroe.
December 5, 1902	Geo. Wims	Miner	Fall of slate	Consolidation Coal Co.	Monroe.
December 19, 1902	John Rowley	Driver	Caught under car	Hocking Coal Co.	Monroe.
January 8, 1903	John Peterson	Miner	Fall of slate.	Wapello Coal Co	Monroe.
January 10, 1903	Thos. Newton.	Miner	Fall of slate	Phillips Fuel Co	Monroe.
February 13, 1903	Jas. Wild	Miner	Premature explosion of dynamite	Wapello Coal Co.	Monroe.
March 20, 1903	C. Conger	Miner	Fall of coal	Exline Coal Co.	Appanoose.
March 24, 1903	A. J. Riley	Miner	Fall of slate	Hocking Coal Co.	Monroe.

Serious accidents in District No. 1, for the year ending June 30, 1902.

DATE OF ACCIDENT.	NAME OF INJURED.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF INJURY.	EMPLOYED BY—	COUNTY.
July 12, 1901	John Neighbour	Laborer	Leg broken	Fall of slate	Wapello Coal Co	Monroe.
July 22, 1901	Robert Young	Miner	Rib broken	Fall of slate	Hocking Coal Co	Monroe.
July 27, 1901	John Cadell	Miner	Collar bone broken hip dislocated	Fall of slate	Consolidation Coal Co.	Monroe.
August 2, 1901	Wm. Packard	Miner	Ankle crushed	Fall of coal	Economy Coal Co	Appanoose
August 19, 1901	Wm. Mitchell	Driver	Leg broken	Fell under car	Wapello Coal Co	Monroe.
August 22, 1901	K. Benson	Miner	Jaw broken	Fall of slate	Smoky Hollow Coal Co	Monroe.
October 22, 1901	J. B. Woodridge	Miner	Ribs broken	Fall of slate	Whitebreast Fuel Co	Lucas.
October 29, 1901	T. Davison	Driver	Ribs broken	Struck by pit car	Whitebreast Fuel Co.	Lucas.
November 24, 1901	C. Fisher	Miner	Leg broken	Fall of coal	Economy Coal Co	Appanoose
January 8, 1902	T. Moon	Miner	Collar bone broken	Fall of coal	Rock Valley Coal Co.	Appanoose
January 10, 1902	Ed. Swanson	Miner	Leg broken	Fall of slate	Consolidation Coal Co.	Monroe.
January 15, 1902	C. Townsend	Miner	Leg broken	Fall of coal	Illinois and Ia. Coal Co.	Appanoose
January 24, 1902	Sam Thomas	Driver	Leg broken	Fell under car	Wapello Coal Co	Monroe.
February 7, 1902	John Rae	Driver	Arm broken	Fall of rock	Mendota C. and M. Co	Appanoose
February 22, 1902	J. Pooelick	Miner	Leg broken	Fall of slate	Hocking Coal Co	Monroe
February 27, 1902	P. E Smith	Driver	Shoulder broken	Coal falling down shaft	Economy Coal Co	Appanoose
March 27, 1902	C. V. Peterson	Driver	Back injured	Fall of slate	Consolidation Coal Co	Monroe.
March 21, 1902	John Cobley	Laborer	Leg broken	Caught between cars	Hocking Coal Co	Monroe.
April — 1902	W. Pete	Miner	Leg broken	Fall of coal	Columbia Coal Co	Appanoose
April 10, 1902	C. W. Moss	Driver	Arm broken	Fall of slate	Smoky Hollow Coal Co	Monroe.
April 12, 1902	E. Armstrong	Miner	Back injured	Fall of slate	Smoky Hollow Coal Co	Monroe.
April 5, 1902	H. Canvin	Trapper	Arm broken	Fell under car	Wapello Coal Co	Monroe.
May 16, 1902	A. Welch	Driver	Leg broken	Fell under car	Wapello Coal Co	Monroe.
May 20, 1902	John Haifley	Driver	Arm broken	Kicked by mule	Smoky Hollow Coal Co	Monroe.
June 14, 1902	G. W. Exline	Miner	Small bones in foot broken	Fall of coal	Exline Coal company.	Appanoose

Serious accidents in District No. 1, for the year ending June 30, 1903.

DATE OF ACCIDENT.	NAME OF INJURED.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF INJURY.	EMPLOYED BY	COUNTY.
July 18, 1902	M. Jones		Leg broken		Hocking Coal Co	Monroe.
August 7, 1902	R. Lennie	Miner	Ribs fractured	Fall of slate	Smoky Hollow C. Co	Monroe.
August 7, 1902	J. Barrow	Miner	Ankle fr ctured	Fall of slate	Smoky Hollow C. Co	Monroe.
September 11, 1902	J. W. Anderson	Timberman	Spine injured	Fall of slate	Consolidation C. Co.	Monroe.
September 11, 1902	Geo. Shortridge	Miner	Back injured	Fall of slate	Consolidation C. Co.	Monroe.
October 13, 1902	A. Wilson	Top hand	Leg broken	Fell from dirt dump	Hocking Coal Co	Monroe.
October 16, 1902	S. Gugerich	Miner	Leg broken	Fall of coal	Ill. & Iowa Coal Co.	Appanoose
November 8, 1902	P. Morgands	Miner	Hip dislocated	Fall of coal	Star Coal Co	Appanoose
November 15, 1902	Wm. Smith	Miner	Broken ankle	Fall of coal	Consumers Coal Co.	Appanoose
November 15, 1902	D. Wolf	Miner	Back injured	Fall of slate	Wapello Coal Co	Monroe.
December 2, 1902	J. Gollis	Miner	Foot broken	Fall of coal	Star Coal Co	Appanoose
December 24, 1902	J. Peckham	Driver	Leg broken	Fell between cars	Tipton Coal Co	Appanoose
January 9, 19 3	S Coddington	Miner	Leg broken	Fall of slate	Numa Block Coal Co	Wayne.
January 17, 1903	C. M. Roberts	Chunker	Leg broken	Fell under car	Smoky Hollow C. Co	Monroe.
January 19, 1903	W. Burt	Miner	Leg broken	Fall of coal	Smoky Hollow C. Co	Monroe.
January 29, 1903	W. Winston	Track layer	Back injured	Fall of slate	Wapello Coal Co	Monroe.
February ... 1903	J. D. Clark	Foreman	Foot injured	Fall of slate	Big Hill Coal Co	Lucas.
February ... 1903	M. Mischell	Miner	Foot injured	Fall of slate	Big Hill Coal Co	Lucas.
February 5, 1903	F. Stice	Driver	Arm broken	Struck by car	Smoky Hollow C. Co	Monroe.
February 13, 1903	G. Mild	Miner	Back injured	Premature explosion of dynamite	Wapello Coal Co	Monroe.
February 28, 1903	H. Matthews	Miner	Arm broken	Fall of coal	Smoky Hollow C. Co	Monroe.
March 13, 1903	F. Lanningham	Driver	Leg broken	Run over by car	Wapello Coal Co	Monroe.
March 17, 1903	Geo. Hughes	Driver	Hand broken	Falling timber	Hocking Coal Co	Monroe.
March 18, 1903	M. Davis	Driver	Arm broken	Fell from tail chain	Hocking Coal Co	Monroe.
May 5, 1903	S. Seddon	Driver	Leg broken	Run over by car	Whitebreast Fuel Co	Lucas.
June 7, 1903	John Price	Driver	Leg broken	Fall of slate	Whitebreast Fuel Co	Monroe.
June 27, 1903	E. Winston	Miner	Wrist and leg broken	Fall of slate	Consolidation C Co.	Monroe.

Fatal and serious accidents from July 1, 1901, to June 30, 1902, with relation to coal produced and number of employes.

COUNTY.	NUMBER OF ACCIDENTS		NUMBER OF TONS OF COAL PRODUCED.	TONS OF COAL PRODUCED FOR EACH ACCIDENT.		NUMBER OF EMPLOYES.	NUMBER OF EMPLOYES FOR EACH ACCIDENT.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
Monroe	7	15	1,268,973	181,282	84,598	2,591	370	173
Appanoose		8	733,973		91,746	2,467		308
Lucas	3	2	235,468	78,489	117,734	449	139	224
Wayne			45,950			186		
Taylor			20,551			100		
Page			1,850			32		
Adams	1		1,765			112	112	
Total	11	25	2,318,535	210,776	92,741	5,937	539	237

Fatal and serious accidents from July 1, 1902, to June 30, 1903, with relation to coal produced and number of employes.

COUNTY.	NUMBER OF ACCIDENTS		NUMBER OF TONS OF COAL PRODUCED.	TONS OF COAL PRODUCED FOR EACH ACCIDENT.		NUMBER OF EMPLOYES.	NUMBER OF EMPLOYES FOR EACH ACCIDENT	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
Monroe	7	18	1,600,148	228,592	88,897	2,839	405	158
Appanoose	2	5	892,692	446,346	178,538	2,499	1,249	500
Lucas	2	3	269,539	134,769	89,846	529	264	176
Wayne		1	74,542		74,542	250		250
Taylor			20,618			96		
Page			9,674			45		
Adams			16,462			101		
Total	11	27	2,883,675	262,152	106,808	6,359	578	235

MINES IN OPERATION IN DISTRICT NO. 1, THEIR LOCATION, ETC.

MONROE COUNTY.

CORPORATION, FIRM OR OPERATOR.	Mine number.	LOCATION OF MINE.	RAILROAD CONNECTION, IF ANY.	Kind of opening.	SYSTEM OF WORKING.	Kind of hoist.	Means of ventilation.
Wapello Coal company	3	1 mile west of Hiteman	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Wapello Coal company	4	3 miles northwest of Hiteman	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Smoky Hollow Coal company	4	Hynes	C., B. & Q.	Slope.	Room and pillar	Steam	Fan.
Smoky Hollow Coal company	6	4 miles southeast of Hynes	C., B. & Q.	Slope.	Room and pillar.	Steam	Fan.
Consolidated Coal company	10	2¼ miles southwest of Buxton	C. & N.-W.	Shaft	Room and pillar.	Steam	Fan.
Consolidated Coal company	11	3 miles south of Buxton	C. & N.-W.	Shaft.	Room and pillar.	Steam	Fan.
Excelsior Coal company		1½ miles west of Foster	C., M. & St. P	Shaft.	Room and pillar.	Steam	Fan.
Phillips Fuel company	6	West of Foster	C., M. & St. P	Shaft.	Room and pillar.	Steam	Fan.
Whitebreast Fuel company	10	Hilton	C., M. & St. P	Shaft.	Room and pillar.	Steam	Fan.
Hocking Coal company	1	Hocking	Iowa Central	Shaft.	Room and pillar.	Steam	Fan.
Hocking Coal company	2	Southeast of Hocking	Iowa Central	Shaft.	Room and pillar.	Steam	Fan.
Central Coal company	1	Lockman	Iowa Central	Slope.	Room and pillar.	Steam	Furnace.
Miller Creek Coal company	1	West of Coalfield	Iowa Central	Slope.	Room and pillar.	Steam	Fan.
Miller Creek Coal company	2	Southeast of Coalfield	Iowa Central	Drift.	Room and pillar		Furnace.
Miller Creek Coal company	3	Southeast of Coalfield	Iowa Central	Drift.	Room and pillar		Furnace.
Star Coal company		2½ miles northwest of Albia		Slope.	Room and pillar	Steam	Fan.
White Ash Coal company		1¼ mile south of Avery		Slope.	Room and pillar.	Steam	Furnace.

APPANOOSE COUNTY.

Columbia Coal company	3	West of Brazil	K. & W.	Slope.	Long wall	Electricity.	Furnace.
Centerville Block Coal company	7	West of Brazil	K. & W.	Slope.	Long wall	Horse	Furnace.
Brazil Coal company		Brazil	K. & W.	Drift.	Long wall		Furnace.
Phœnix Coal company		Brazil	K. & W.	Drift.	Long wall		Furnace.
Centerville Block Coal company	5	Brazil	K. & W.	Slope	Long wall	Steam	Furnace.
Tipton Co-operative Coal company		Brazil	K. & W.	Drift.	Long wall		Furnace.
Peacock Coal company		Brazil	K. & W.	Drift.	Long wall		Furnace.
Oriental Coal company		South of Brazil	K. & W.	Slope.	Long wall	Steam	Furnace.

APPANOOSE COUNTY—CONTINUED.

CORPORATION, FIRM OR OPERATOR.	Mine number.	LOCATION OF MINE.	RAILROAD CONNECTION, IF ANY.	Kind of opening.	SYSTEM OF WORKING.	Kind of hoist.	Means of ventilation.
Domestic Coal company		1 mile southeast of Brazil	K. & W	Shaft.	Long wall	Steam	Fan.
Centerville Block Coal company	8	West of Centerville	K. & W. and Iowa Cen	Shaft.	Room and pillar.	Steam	Fan.
Anchor Coal company	1	Centerville	K. & W	Shaft	Room and pillar.	Steam	Fan.
Scandinavian Coal company		Centerville	K. & W	Shaft.	Room and pillar.	Steam	Fan.
Dewey Coal company		1½ miles southeast of Centerville	K. & W	Shaft.	Room and pillar.	Steam	Fan.
Hocking Valley Coal company	1	1½ miles southwest of Cincinnati	C. B. & K. C.	Slope.	Long wall	Horse	Furnace.
Hocking Valley Coal company	2	1¾ miles southwest of Cincinnati	C. B. & K. C.	Slope.	Long wall	Horse	Furnace.
Mendota Coal and Mining company	2	West of Cincinnati	C. B. & K. C.	Shaft.	R. & P., long wall	Steam	Fan.
Mendota Coal and Mining company	1	Cincinnati	C. B. & K. C.	Shaft.	R. & P., long wall	Steam	Fan.
Thistle Coal company	8	Southeast of Cincinnati	C. B. & K. C.	Shaft.	R. & P., long wall	Steam	Fan.
Thistle Coal company	1	1 mile east of Cincinnati	C. B. & K. C.	Shaft.	Long wall	Steam	Fan.
Thistle Coal company	2	1¼ miles east of Cincinnati	C. B. & K. C.	Shaft.	Room and pillar.	Steam	Fan.
Exline Coal company		1¼ mile west of Exline	C., B & K. C.	Shaft	Room and pillar.	Steam	Jet.
Royal Coal company		Northeast of Exline	C., B. & K. C.	Slope	Long wall	Steam	Furnace.
Centerville Block Coal company	2	Numa	C., R. I & P.	Shaft.	Long wall	Steam	Fan.
Numa Coal company	1	Numa	C., R. I. & P.	Shaft	Long wall	Steam	Fan.
Anchor Coal company	3	3½ miles southwest of Centerville	C., R. I. & P.	Shaft	Long wall	Steam	Fan.
Anchor Coal company	2	2 miles south of Centerville	C., R. I. & P.	Shaft.	Long wall	Steam	Fan.
Centerville Block Coal company	1	East of Centerville	C., R. I. & P.	Shaft.	Room and pillar.	Steam	Fan.
Centerville Block Coal company	10	East of Centerville	C., R. I & P.	Shaft.	Room and pillar.	Steam	Fan.
Centerville Block Coal company	9	West of Centerville	Iowa Central	Shaft.	Room and pillar.	Steam	Fan.
Illinois and Iowa Coal company		Forbush	Iowa Central	Shaft.	Long wall	Steam	Fan.
Consumers Coal company		Jerome	C., M. & St. P	Shaft.	Long wall	Steam	Fan.
Big Jo Coal company		1¾ miles east of Jerome	C., M. & St P	Shaft.	Long wall	Steam	Fan.
F. H. Juckett Coal company		3 miles southwest of Mystic	C., M. & St. P	Shaft	Long wall	Steam	Fan.
Columbia Coal company	1	Diamond	C., M. & St. P	Slope.	Long wall	Steam	Furnace.
Peerless Coal company	4	1½ miles west of Mystic	C., M. & St. P	Shaft.	Long wall	Horse	Furnace.
Peerless Coal company	5	1¼ miles west of Mystic	C., M. & St. P	Shaft.	Long wall	Steam	Furnace.
Egypt Coal company		West of Mystic	C. M. & St. P.	Slope.	Long wall	Steam	Furnace.
Peerless Coal company	1	Mystic	C. M. & St. P.	Drift.	Long wall		Furnace.
Artic Coal company		Mystic	C. M. & St. P.	Drift.	Long wall		Furnace.
Acken Coal company	1	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Horse	Furnace.
Acken Coal company	2	West of Mystic	C. M. & St. P.	Slope.	Long wall	Steam	Furnace.
Peerless Coal company	7	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Jet.
Mystic Coal company		West of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Fan
Big Three Coal company		West of Mystic	C. M. & St. P.	Slope.	Long wall	Horse	Furnace.

Lodwick Bros. Coal company	2	Mystic	C. M. & St. P.	Shaft	Long wall	Steam	Fan
Peerless Coal company	6	Mystic	C. M. & St. P.	Drift	Long wall		Furnace.
McGrann Coal company		Mystic	C. M. & St. P.	Drift	Long wall		Furnace.
Phillips Bros.		Mystic	C. M. & St. P.	Drift	Long wall		Furnace.
Peerless Coal company	3	Mystic	C. M. & St. P.	Drift	Long wall		Furnace.
Lodwick Bros. Coal company	1	Mystic	C. M. & St. P	Slope	Long wall	Horse	Furnace.
Orr Bros.		1½ mile east of Mystic	C. M. & St. P.	Shaft	Long wall	Steam	Fan
Diamond Block Coal company		Clarkdale	C. M. & St. P.	Shaft	Long wall	Steam	Fan
Star Coal company		Rathbun	C., M. & St. P	Shaft	Long wall	Steam	Fan.
Stone Co l company		East of Rathbun	C., M. & St. P	Shaft	Long wall	Horse	Furnace.
Geo. Gill		Darby	C., M. & St. P	Slope	Long wall		Furnace.
Manufacturers Coal & Coke company	30	1½ miles south of Centerville	I. & St. L.	Shaft	Room and pillar	Steam	Fan.
Happy Coal company		Centerville		Shaft	Long wall	Horse	Furnace.
Star Coal company		Centerville		Shaft	Room and pillar	Horse	Furnace.
Monitor Coal company		Centerville		Shaft	Room and pillar	Horse	Furnace.
Rock Valley Coal company		1 mile northeast of Centerville		Shaft	Room and pillar	Horse	Furnace.
White Oak Coal company		Centerville		Shaft	Room and pillar	Horse	Furnace.
Superior Coal company		South of Jerome		Shaft	Long wall	Horse	Furnace.
White Oak Coal company		North of Exline		Shaft	Room and pillar	Horse	Furnace.

LUCAS COUNTY.

White Breast Fuel company	4	Cleveland	C., B. & Q.	Shaft	Room and pillar	Steam	Fan.
Big Hill Coal company		Lucas	C., B. & Q.	Shaft	Room and pillar	Steam	Fan.
Inland Fuel company		3½ miles northeast of Chariton		Shaft	Room and pillar	Steam	Fan.

WAYNE COUNTY.

Numa Block Coal company	2	1 mile northeast of Seymour	C., M. & St. P	Shaft	Long wall	Steam	Fan.
Numa Block Coal company	3	Seymour	C., R. I. & P	Shaft	Long wall	Steam	Fan.
J. L. Slack		Harvard		Shaft	Long wall	Horse	Furnace.
E. A. Sipes		4 miles south of Confidence		Shaft	Long wall	Horse	Furnace.
L. Frye		1½ miles south of Confidence		Shaft	Long wall	Steam	Fan.

TAYLOR COUNTY.

Tomlinson & Miller		East of New Market	Burlington	Shaft	Long wall	Horse	Furnace.
Campbell Coal company	1	East of New Market	Burlington	Shaft	Long wall	Horse	Furnace.
Campbell Coal company	2	East of New Market		Shaft	Long wall	Horse	Furnace.
Wm. Browning		East of New Market	Burlington	Shaft	Long wall	Horse	Furnace.
N. Easter		2 miles east of New Market		Shaft	Long wall	Horse	Furnace.
Wm. Welch		2 miles east of New Market		Shaft	Long wall	Horse	Furnace.

PAGE COUNTY.

CORPORATION, FIRM OR OPERATOR.	Mine number.	LOCATION OF MINE.	RAILROAD CONNECTION, IF ANY.	Kind of opening.	SYSTEM OF WORKING.	Kind of hoist.	Means of ventilation.
Johnston & Company		2 miles west of Clarinda		Shaft.	Long wall	Horse	Furnace
J. W. Berry Coal company		2 miles southwest of Clarinda		Shaft.	Long wall	Horse	Furnace.
Winger Bros.		2½ miles southwest of Clarinda		Shaft.	Long wall	Horse	Furnace.
I. Vanarsdal		West of Clarinda		Shaft.	Long wall	Horse	Furnace.

ADAMS COUNTY.

W. S. Ellenwood		Eureka		Shaft	Long wall	Horse	Furnace.
J. M. Henton		Eureka		Shaft.	Long wall	Horse	Furnace.
Wm. Collins		Carbon		Shaft.	Long wall	Horse	Furnace.
M. Jones		Carbon		Shaft.	Long wall	Horse	Furnace
Reese & Perks		Carbon		Shaft.	Long wall	Horse	Furnace
J. F. Wild		Carbon		Shaft	Long wall	Horse	Furnace.
J. F. Ruth		Carbon		Shaft.	Long wall	Horse	Furnace.
Jas. Spargur		4 miles west of Carbon		Shaft.	Long wall	Horse	Furnace.
Eclipse Coal company		Briscoe		Shaft.	Long wall	Horse	Furnace.

MONROE COUNTY.

The production of 1,600,000 tons of coal last year by the nineteen mines of Monroe county, places it at the head of the coal producing counties of Iowa, and it seems certain that it will retain that position for years to come. The largest mines in the state are located here and their number is rapidly increasing. Five railroads are available for coal shipment. Connected with the Chicago, Burlington and Quincy railroad are mines of the Wapello Coal company and the Smoky Hollow Coal company; the Chicago and North-Western railway carries the product of the mines of the Consolidated Coal company; on the Iowa Central railway are located the mines of the Hocking Coal company, the Central Coal company and the Miller Creek Coal company; tributary to the Chicago, Milwaukee and St. Paul railroad are the mines of the Whitebreast Fuel company of Illinois, the Excelsior Coal company and the Phillips Fuel company. One railroad, the Wabash, has so far no mines connected with its line running through the county. Two mines, the White Ash mine, near Avery, and the Star mine, northwest of Albia, have no railroad connection, although considerable coal is shipped from them.

The coal measures of the county are comparatively shallow and contain several workable seams of coal. The thin upper seams, two feet and less in thickness, are worked only in a small way in a few places during the winter for home trade, and their development on a large scale is yet a long way off. The seam now so extensively worked, has a thickness of from three to seven feet, lies fairly level, is reached by shafts and slopes and is worked on the room and pillar plan.

Seven fatal accidents occurred in the mines of Monroe county during the year ending June 30, 1902, and seven during the year ending June 30, 1903. While the number of fatal accidents, in each year was the same, the last year showed quite an improvement over its predecessor. In the first year 181,282 tons of coal were mined for each life lost; in the second year 228,592 tons were produced for each fatal accident. In the first year one death occurred to every 370 men employed; in the second year the ratio was lowered to one death to every 405 employes.

All the large mines are ventilated by fans and only four of the smaller ones have furnaces. The ventilation of most of these mines was, in a general way, satisfactory, but in a few, considerable difficulty was experienced in airing them properly. Natural disadvantages, mistakes in mine development, extensive airways of rather small dimensions and other drawbacks together with low fan efficiency made the problem of ventilating them an extremely hard one to solve. Nearly all the fans in the county showed a rather low efficiency against a heavy mine resistance, because incapable of producing a correspondingly high water guage. The fan on No. 10 mine of the Consolidation Coal company gave better results in this respect than any other fan in the county. Considerable work was done in the last year

to improve the sanitary condition of the mine, and fair progress has been made in this direction.

Judging from the number of new mines already commenced or contemplated in the near future and the improvements made in the mines now running, a large increase in the coal production of Monroe county may be expected the coming year. The Consolidation Coal Co. has started and will develop extensively several mines which promise to become large producers. The Central Coal Co. is opening a new slope, the Smoky Hollow Coal Co. is preparing to sink slope No. 7, the new mine of the Excelsior Coal Co. is being rapidly developed, and the Wapello Coal Co. and the Hocking Coal Co. have lately completed extensive improvements in their mines to facilitate the rapid handling of the coal output. With a fair market and no break in the friendly relations between the operators and miners, the coal production of Monroe county for the coming year will probably exceed 1,800,000 tons.

APPANOOSE COUNTY.

While Monroe county heads the list of coal producing counties of the state, as far as coal production is concerned, Appanoose county stands in front as having a larger number of mines than any other county in Iowa. The amount of coal produced by the Appanoose county mines was the largest annual production, since mining commenced in the county, and far exceeded that of any former year; yet, large as it was, it has not done justice to the remarkable mineral resources of this county. Without adding a single new mine to the present number, its annual coal production could be made to surpass that of any other county in Iowa, but to accomplish this, the slow and somewhat crude system of handling coal, that has been followed for years, must be improved.

The Iowa Central Railway, the Chicago, Milwaukee and St. Paul, the Rock Island, two branches of the Burlington system and the Iowa and St. Louis Railway furnish shipping facilities for the coal product of the county. The Wabash, running through the eastern portion of the county, is the only railroad having no mines connected with it. The Chicago, Milwaukee and St. Paul railroad serves the greater number of mines, twenty-six; next comes the Keokuk and Western with thirteen; then the Chicago, Burlington and Kansas City with eight. The Rock Island road has six mines on its line, the Iowa Central three, and the Iowa and St. Louis one. Besides these mines a number of small ones are worked in different parts of the county; a few of these ship a little coal during the winter, the others are operated for local trade only.

The coal seam now worked, while thin, averaging about two and one-half feet in thickness, is very valuable on account of its easy accessibility, regularity, quality and extent. Its area in the county covers probably more than two hundred and fifty square miles. The long wall method of working the seam is generally used, although in some of the mines near Centerville and Cincinnati the room and pillar plan is given the preference. Mining machines are used in some of the mines near Centerville and Mystic. The Lee long wall machine, especially designed for this seam, is run by electricity and does

good work. The Legg and Harrison machines, used in the mines of the Centerville Block Coal Co., are run by compressed air and have been in successful operation for a number of years.

In point of safety the mines compare favorably with any mines in the United States. Only two fatal accidents occurred in them during the last two years. More than 300,000 tons of coal were mined for each life lost, and the ratio of deaths to number of men employed was 1 to about 1,250. But, while all the mines showed an excellent record for safety, a large number were found deficient in ventilation. In the last year, however, much has been done to overcome this difficulty. Seven air shafts have either been sunk or have been started and will soon be completed, and other improvements have been made or are under way to better conditions

The work done in this direction has been especially noticeable in the mines along the C., B. & K. C. railroad; especial credit being due to the Thistle Coal Co. and the Mendota Coal and Mining Co. for the improvements made in their mines near Cincinnati. The Peerless Coal Co., operating several mines in and near Mystic, also deserves credit for the work it has done and is doing to better the conditions of its mines.

LUCAS COUNTY.

The number of mines worked in this county have not been increased in the last two years. The amount of coal mined in that time, however, shows an increase of 122,018 tons over the production during the preceding biennial period. The largest mine is located at Cleveland and is operated by the Whitebreast Fuel Co. of Illinois. Its product is shipped over the C., B. & Q. railroad. The only other mine having railroad connection is operated by the Big Hill Coal Co. at Lucas. The Inland Fuel Co.'s mine, northeast of Chariton, is as yet without railroad facilities, and on that account has been seriously hindered in development work and in marketing the coal produced.

The coal seam worked belongs to the lower measures; its thickness varies from three and one third to seven feet, lies fairly level and at considerable depth from the surface. The depth of the shaft of the Whitebreast Fuel company is 321 feet, that of the shaft of the Big Hill Coal company 274 feet and the Inland Fuel company's shaft is 250 feet deep. All the mines are worked on the room and pillar plan. The vein is not a compact or regular one, but occurs in basins of varying extent. Often adjacent basins are connected by a thin stratum of coal, but sometimes they are found bounded on all sides by barren ground. Under such conditions it will be apparent that only thorough and systematic prospecting can locate and determine the extent of these basins and furnish fairly accurate proof as to whether they can be worked profitably or not.

Notwithstanding the fact that five fatal accidents occurred in and about above three mines in the last two years, and that comparison with other counties with regard to fatal accidents makes the record of Lucas county in this respect appear a very poor one, it should not be assumed that these mines are more dangerous or that they are less efficiently managed than the

mines elsewhere in the district, and the proof that the mines are fairly well looked after and that they can compare favorably with other mines is, in a measure, furnished by the accidents themselves. One man was killed outside of the mines and four men were killed in the mines. Of the latter four, one was a driver, one a shotfirer and two were timbermen. That the list does not include miners is remarkable and an indication that their working places were not only fairly safe, but that they exercised due care in protecting themselves against possible danger. The timbermen were killed, while following the instructions of the mine foreman to keep the haulage and traveling roads in safe condition, in the performance of their usual work. The death of McDowell, the shotfirer, who was killed by an explosion in mine No. 4, Cleveland, on January 6, 1902, could have been avoided, had said McDowell been more careful in his work. It is gratifying to me to be able to state that the blasting of coal is performed under safer conditions than formerly. Since the passage of the shot examination law no one has been injured through the use of explosives in the mines of this county.

WAYNE COUNTY.

A considerable portion of Wayne county appears to be underlaid with workable coal, but mining so far has not been carried on very extensively. Upwards of 74,000 tons of coal were produced in the county last year, more than two thirds of this amount coming from one mine, the Big Jim, operated by the Numa Block Coal company. The remainder came from the mine of the Seymour Coal company, recently acquired by the Numa Block Coal company, and local mines in the vicinity of Harvard and Confidence. The Numa Block Coal company is now the only shipper of coal and its mines are located on the Rock Island road and the Milwaukee near Seymour. The vein of coal worked is a continuation of the Appanoose vein, slightly thinner and at Seymour lies at a considerable depth below the surface, the two shafts there being 202 and 245 feet deep respectively. The Big Jim mine gives fair promise to produce more coal the coming year than any other mine in the Appanoose-Wayne field. Had it not been for a fire which destroyed its engine and boiler house last winter and caused a stoppage of work for nearly two weeks, this mine would have probably headed the list last year; as it was, its coal output last year was only exceeded by one mine in Appanoose county by a few thousand tons.

The Wayne county mines are worked long wall, and in point of safety are about equal to the mines of Appanoose county. Their sanitary condition is fairly satisfactory.

No fatal accident occurred in the mines during the last two years, and only one serious accident was reported in that time.

TAYLOR COUNTY.

Nearly all the mines in this county are located in the vicinity of New Market. They are, like the coal worked in them, small. Three of them do a shipping business and a ready market for all the coal they can produce is

found in Clarinda and other near towns. The coal is about sixteen inches thick, is reached by shafts and is worked long wall. The safety devices of some of the mines have been recently improved and the mines are about as safe as any in the state. On account of the small extent of the mines and the method of working them, their ventilation is easily accomplished and generally satisfactory.

PAGE COUNTY.

As far as comparative gain in coal production for last year is concerned, Page county is far ahead of any county in the state. In the year ending June 30, 1902, its coal production amounted to 1,850 tons, last year it was 9,674 tons, an increase of more than 500 per cent. All the mines, four in number, are located near Clarinda. They have no railroad connection, but home demand gives them a ready market for all the coal they can produce.

The vein worked averages less than eighteen inches in thickness and is reached by shafts, some of them nearly 200 feet deep. The coal is worked Long wall. The mines are equipped with the necessary safety devices, are easily ventilated and the mine workings are kept in fairly safe and satisfactory condition.

ADAMS COUNTY.

None of the mines of Adams county ships coal by rail; the entire output is sold in the home market, and in the winter the demand often exceeds the supply. In the summer very little mining is done.

The coal seam averages about sixteen inches in thickness, is reached by shallow shafts and is worked long wall. The mines are located near Carbon, Briscoe, Eureka and Hoyt. Ventilation is produced by small furnaces, and in cold weather natural ventilation is generally sufficient to air the mines satisfactorily.

The underground work is done under much safer conditions than exist in the large mines of the central part of the state; accidents of a serious nature are very rare and the experienced and careful miner runs little risk of injury. The one fatal accident, which occurred during the last two years, appears to have been due to inexperience and carelessness on the part of the deceased.

List of corporations, firms, and individuals operating mines in the first district, their post office address and shipping facilities, if any.

MONROE COUNTY.

CORPORATION, FIRM OR INDIVIDUAL.	POST OFFICE ADDRESS.	SHIPPING FACILITIES.
Consolidation Coal company	Buxton	Chicago & Northwestern.
Wapello Coal company	Hiteman	Chicago, Burlington & Quincy.
Smoky Hollow Coal company	Avery	Chicago, Burlington & Quincy.
Excelsior Coal company	Foster	Chicago, Milwaukee & St. Paul.
Phillips Fuel company	Foster	Chicago, Milwaukee & St. Paul.
Whitebreast Fuel Company of Illinois	Ottumwa	Chicago, Milwaukee & St. Paul.
Hocking Coal company	Hocking	Iowa Central.
Central Coal company	Albia	Iowa Central.
Miller Creek Coal company	Coalfield	Iowa Central.
Star Coal company	Albia	Chicago, Burlington & Quincy.
White Ash Coal company	Avery	Chicago, Burlington & Quincy.

APPANOOSE COUNTY.

Columbia Coal company	Centerville	Keokuk & Western and Chicago, Milwaukee & St. Paul.
Centerville Block Coal company	Centerville	Keokuk & Western, Iowa Central, and Chicago, Rock Island & Pacific.
Brazil Coal company	Centerville	Keokuk & Western.
Phoenix Coal company	Brazil	Keokuk & Western.
Tipton Co-operative Coal company	Brazil	Keokuk & Western.
Peacock Coal company	Brazil	Keokuk & Western.
Oriental Coal company	Centerville	Keokuk & Western.
Domestic Coal company	Centerville	Keokuk & Western.
Anchor Coal company	Centerville	Keokuk & Western and Chicago, Rock Island & Pacific.
Scandinavian Coal company	Centerville	Keokuk & Western.
Dewey Coal company	Centerville	Keokuk & Western.
Hocking Valley Coal company	Cincinnati	Chicago, Burlington & Kansas City.
Mendota Coal and Mining company,	Cincinnati	Chicago, Burlington & Kansas City.
Thistle Coal company	Cincinnati	Chicago, Burlington & Kansas City.
Exline Coal company	Exline	Chicago, Burlington & Kansas City.
Royal coal company	Tabor	Chicago, Burlington & Kansas City.
Numa Block Coal company	Seymour	Chicago, Rock Island & Pacific.
Illinois and Iowa Coal company	Ottumwa	Iowa Central.
Consumers coal company	Cedar Rapids	Chicago, Milwaukee & St. Paul.
Big Jo Coal company	Harkes	Chicago, Milwaukee & St. Paul.
F. H. Juckett Coal company	Cedar Rapids	Chicago, Milwaukee & St. Paul.
Peerless Coal company	Centerville	Chicago. Milwaukee & St. Paul.
Egypt Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Arctic Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Acken Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Mystic Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Big Three Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Lodwick Bros. Coal company	Mystic	Chicago, Milwaukee & St. Paul.
McGran Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Orr Bros.	Mystic	Chicago, Milwaukee & St. Paul.
Diamond Block Coal company	Mystic	Chicago, Milwaukee & St Paul.
Star Coal company	Rathbun	Chicago, Milwaukee & St. Paul.
Stone Coal company	Mystic	Chicago, Milwaukee & St. Paul.
Geo. Gill	Darby	Chicago, Milwaukee & St. Paul.
Manufacturers Coal and Coke company	Centerville	Iowa & St. Louis.

APPANOOSE COUNTY—CONTINUED.

CORPORATION, FIRM OR INDIVIDUAL.	POST OFFICE ADDRESS.	SHIPPING FACILITIES.
Happy Coal company	Centerville.	
Star Coal company	Centerville.	
Monitor Coal company	Centerville.	
Rock Valley Coal company	Centerville.	
White Oak Coal company	Centerville.	
H. W. Farnsworth	Exline.	
Superior Coal company	Jerome.	
R. Campbell	Brazil.	

LUCAS COUNTY

Whitebreast Fuel Co. of Illinois	Ottumwa	Chicago, Burlington & Quincy.
Big Hill Coal Co.	Lucas	Chicago, Burlington & Quincy.
Inland Fuel Co.	Chariton	

WAYNE COUNTY

Numa Block Coal company	Seymour	C. M. & St. P. and C. R. I. & P.
J. L. Slack	Harvard.	
E. A. Sipes	Promise City.	
L. Frye	Promise City.	

TAYLOR COUNTY.

Tomlinson & Miller	Newmarket.	Chicago, Burlington & Quincy.
R. Campbell Coal company	Newmarket.	Chicago, Burlington & Quincy.
Wm. Browning	Newmarket.	Chicago, Burlington & Quincy.
Wm Welch	Newmarket.	
N. Easter	Newmarket.	

PAGE COUNTY.

Johnston & Company	Clarinda.	
J. W. Berry Coal company	Clarinda.	
Winger Bros.	Clarinda.	
I. Vanaredal	Clarinda.	

ADAMS COUNTY.

W S. Ellenwood	Eureka.	
J. M. Henton	Eureka.	
Wm. Collins	Carbon.	
M. Jones	Carbon.	
Reese & Perks	Carbon.	
J F. Wild	Carbon.	
J. F. Ruth	Carbon.	
Eclipse Coal Mining company	Briscoe.	
Jas. Spargur	Nodaway.	

SECOND DISTRICT.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I submit herewith my first report as Inspector of Mines, covering a period of fifteen months' service, and furnishing such data as was available, to include, from the nine months' service of my predecessor.

Fiscal biennial period ending June 30, 1903.

EDWARD SWEENEY,
Inspector Second District.

REPORT OF SECOND DISTRICT.

This district includes the following counties: Warren, Marion, Mahaska, Keokuk, Wapello, Davis, Van Buren and Jefferson.

There are ninety-seven mines producing coal in the counties named and the tonnage production for the period reported aggregate 3,009,125 tons

There are 3,142 miners and employes engaged in the district.

The conditions governing in the matter of tonnage prices and wages are mutually satisfactory between miners and operators. Wages are higher than at any period of coal mining in Iowa, and the rates as herewith furnished are based upon an eight hour work day and would indicate the happy harmony that obtains throughout the coal mining districts.

RATE OF WAGES PAID IN THE SECOND DISTRICT FOR AN EIGHT HOUR DAY.

1903 SCALE YEAR.

Ninety-five cents per ton, screen coal and varies to meet changes in natural conditions.

8 foot entry per yard	$2.47
12 foot entry per yard	1.90
Room turning each, not to exceed nine foot neck	5.04
Track layers, timbermen, cagers per day	2.56
Drivers, trip riders and water haulers per day	2.56
Track layers and timbermen helpers per day	2.36
Boy couplers per day	1.52
Oilers per day	1.40
Trappers per day, boys	1.13
Electric motormen and spike team drivers, when engaged in regular switching, per day	2.70
All other inside adult labor per day	2.36

Stable men to receive 12½ cents advance over wages of 1902 scale year.

Boy drivers may be used between partings, but when used at regular switchings they shall be considered as men, and receive men's wages.

Where the company does the sharpening the price of blacksmithing shall be 1⅓ per cent of the gross earnings, provided that the miner's tools be given preference over all other work done by the blacksmith.

TOP LABOR.

The price for dumpers, chunkers, screening car men, and all other common top labor shall be advanced 12½ per cent over wages of 1902, provided that no company shall be required to figure from a higher wage than $1.70 per day, and provided further, that no one receiving more than $1.90 shall be reduced.

Sinkers per day of eight hours.....$2.70

The wage earnings as herewith furnished are net, excepting the cost of lamp oil to the day wage hands and smithing, oil and blasting powder to miners. Oil is usually sold at the mine for 60 cents per gallon, while powder is furnished by mutual agreement for $2.00 per keg. The coal tonnage produced with each keg of powder varies, according to the skill and efficiency of the miner, and the thickness of coal, with other natural conditions, such as water, bad top and sulphur and dirt bands encountered.

ACCIDENTS.

During the period covered by this report there has been thirty-six fatal and fifty-three non-fatal accidents in this district. It seems that while time lasts and men mine coal there will be accidents in connection with the industry. Were it not for much unnecessary risk and carelessness among men the number of mine accidents would be materially lessened.

The Lost Creek explosion, the greatest catastrophe occurring in the annals of Iowa's coal mining, happened on January 24, 1902, about ten miles from Oskaloosa, in Mahaska county, and a list of dead and injured is herewith furnished:

THE DEAD.

John Elder, white; Russell Fish, white; John Bert, white; John Kovall, white; Samuel Humphrey, white; Daniel (Boone) Fish, white; Michael Fox, Sr., white; David Walters, white; Andrew Pash, white; Joseph Gaspari, white; Alexander Gray, white; John Meneally, white; John Martin, white, George Denchok, white; James Humphrey, white; Charles S. Crews, white; Michael Fox, Jr., white; Sylvester C. Crayton, colored; John C. Stovall, colored.

LOST CREEK INJURED.

John Jurkin, George Gogo, Jonas Mabie, Jr., Oliver Mabie, Charles Laman, Frank Secress, Edward Swanson William Booth, William Fothergill George Fothergill, Mathew Aday, William Harvey, Harry Darracks, Asa Sullivan.

We have in this list twenty dead and fourteen injured as a result of one mine accident. I shall not venture to give particulars of this explosion. It occurred ten weeks before my entering the service as mine inspector. A special inquiry and investigation was speedily instituted. The Governor's commission of competent men, operators and miners, made a searching inquiry, reporting their findings, copies of which have been distributed and such is filed in the Inspectors' office.

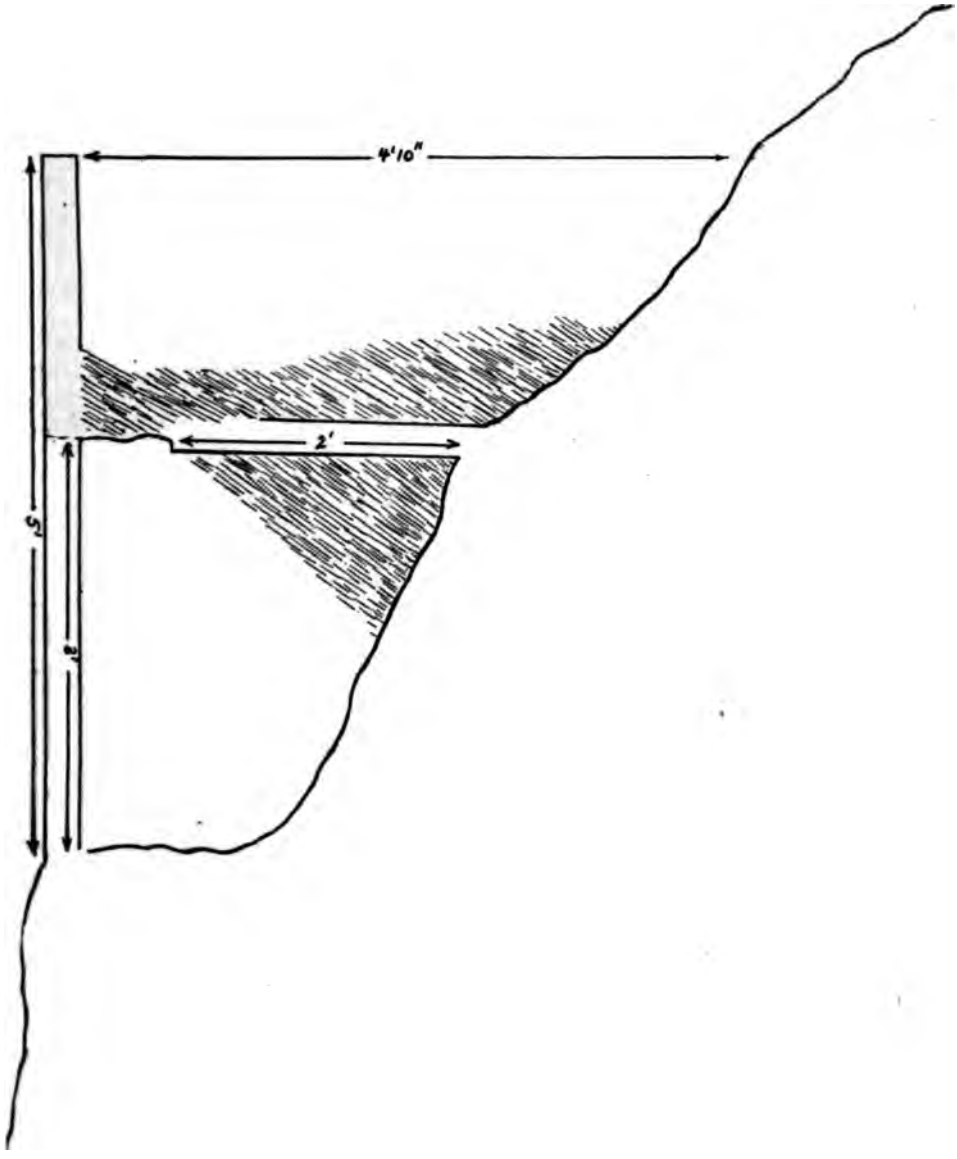
I submit, however, the report of the commission herewith, as bearing directly upon the Lost Creek explosion, with the "Diagram" locating the place of accident producing such awful results. The observations, suggestions and recommendations of the commission, is quite comprehensive and general in character, and might profitably be studied, in connection with the Eleventh Volume of Iowa Coal statistics.

FINDINGS OF COMMISSION AT MINE NO. 2, LOST CREEK.

"The commission organized for the work before it on the seventeenth of February, 1902, by electing Hon. T. J. Phillips chairman, and Mine Inspector John Verner, secretary. It was thought advisable before taking up the

work, to visit mine No. 2 of the Lost Creek Fuel company in Mahaska county, to afford each member of the commission the opportunity to make a personal examination and investigation as to the condition of the mine and the cause of the explosion which occurred in that mine about noon, January 24, 1902. The mine was visited on February 18th. The damage done by the explosion to doors and stoppings had been repaired, the mine was found in good condition, and its ventilation ample. The evidence of the miners, who had worked in this mine prior to the explosion, and in that part of it affected by it, showed that the air had been well conducted and of sufficient volume to assure efficient ventilation of the working places. It had been and is now the practice to slow down the fan just before firing time and keep it moving slowly until after the completion of the firing.

The explosion undoubtedly started in room No. 10, on the second north on the east side. This room is about 500 feet distant from the hoisting shaft, was driven in the distance of fifty feet from the entry, and had not break-throughs connecting it with the adjacent rooms. Andrew Pash, the miner who worked in No. 10, and who was among the killed, had charged two holes on the forenoon of January 24th, one on the left rib, the other near the right rib of the place. The former hole only was fired and the explosion originated from it. Mr. Jonas Mabie, Jr., a driver, who hauled coal from No. 10 room before the explosion, and whose work caused him to be in that room on the morning of January 24th, made the positive statement before all the members of the commission, that the hole in question had been fired at quitting time Thursday, January 23rd; that it had blown the tamping at that time and had been recharged on Friday forenoon, January 24th. In the opinion of the commission it is very probable that the size of the charge was increased also. The hole was five feet deep, four feet, ten inches on the point, slim heel, coal three feet, eleven inches high below the black jack, which did not shoot with the coal. The shot blew the tamping at the second firing, but the dangerous feature about it, and which proved the real cause of the explosion, was part of an old hole, two feet deep, left on from a former shot, that had been drilled at right angles to the hole on the rib, three feet from the mouth of the latter hole, a little below it, and within seven and one half inches of tapping the same (see sketch.)



SHOT FIRED ON JANUARY 24, 1902, IN NO. 2 MINE, LOST CREEK, IOWA, IN ROOM 10, SECOND NORTH, EAST SIDE.

"The side of the hole on the rib was evidently shattered by the charge exploding in it the first time, and when the second charge was fired in the same hole, communication between it and the old hole was easily established, if it had not been established before, and through it and the fissures near it the flaming gases were projected into the room with great force and so intensely hot that the thin layer of coal adhering to the roof was blistered and burned. Along the right rib a considerable amount of soot and cooked dust furnished additional evidence of intense heat. It is undoubtedly true that the dust stirred up in this room by the firing of the shot and ignited by the flaming gases increased the initial force of the explosion considerably.

"Not more than six shots were fired in the territory traversed by the explosion. Probably two shots were fired in No. 12 on the second north, one in No. 10, one in the stub entry off No. 9, and one in No. 9. One shot was fired in the first room working on the main east.

"The flame evidently traveled close to the roof. Not a keg or vessel containing powder was exploded, although in several instances the stoppers had been removed, and several dinner pails found in low positions, having wooden handles painted and varnished, that would show the effects of fire, while covered thickly with soot, showed no evidence of fire having touched them.

"There is a decided similarity in the manner in which this explosion was caused and the explosion at Como, Col., on January 9, 1893, which resulted in the death of twenty-four miners. Both were due to the presence of parts of old holes previously drilled and fired in the piece of coal intended to be removed by a second shot. In the Como mine a hole had been drilled by one of the miners and the charge fired. As the place chosen for this hole was not favorable for blowing down coal, it was a comparatively ineffectual shot. A second hole was placed close to the first and charged. When it exploded, instead of blowing down coal, it broke into the first hole and the flame of the powder extended out into the chamber and the explosion resulted."

STRIKES.

There has been very little in the way of mining troubles in this district during the past two years. The general question of a mining price and miners wages, being agreed to by and through mutual concession, between operators and miners, as a result of the joint conciliatory movement of bituminous mine owners and miners. While much valuable time is spent in connection with this work by both parties to the agreement, in conventions, general and local, the settlement of mining prices to govern throughout the coal producing sections of our state, for what is known as the scale year, is a happy arrangement, and it is generally conceded that the labor and time, together with the convention expenses, is labor and money well and profitably spent.

There is secured to our people identified with or depending upon this industry, work and wages and coal fuel for the year, without strikes, idleness and consequent hardships and troubles. Our citizens as a whole owe much to the patience, intelligence and sacrifices of the men who have achieved such peaceful results in this great industry. Men representing and controlling millions of dollars in coal properties, paying out annually in

wages vast sums, and to the thousands of mine workers, whose horny hands and strong muscles produce for the use and comfort of our whole people millions of tons of coal annually, such forces meeting together, discussing rationally, questions of common concern, from the point of view each represents and thinks best, is a most commendable movement in our industrial life, concluding their labors in peace and good will. Uniting their joint efforts at the banquet table, where speeches, songs and story obtain as the sessions *sine die* is proclaimed by the master of ceremonies.

To the coal miners' union officers and the coal operators' state officials and commissioner much credit is due for the success that has attended the joint movement of coal operators and coal miners in this state. Such local mine troubles as do occur and where differences are prolonged, it is due entirely to the unfair attitude of local men, sometimes miners and sometimes the mine managers, who fail to comprehend or refuse to recognize the constitution of the miners' union and the terms of the joint agreement. Fortunately men of this calibre are becoming happily less numerous in power and position, so that the future promises a greater degree of peace and good will to the mining industry of Iowa.

SCALES AND WEIGHING OF COAL.

From various causes the scales may become insensitive to a true balance, owing to dirt accumulation, a water flow in rainy seasons and lodgment of fine coal in the scale pit. I am pleased to report the fairness of all mine owners in my district, in offering every facility to secure to the miners and all parties concerned, honest and just weight.

I have tested forty-one (41) scales in use at as many mines in this district during my service and condemned eighteen (18) of such number, as incapable of giving true weight. In this service I have had an opportunity of studying the disposition of all parties concerned, to be fair and avoid strikes and trouble. The influence of the joint movement was strongly in evidence and to the miners' officers and the operators' commissioner I desire to return my thanks for courtesies shown me in the performance of my duties as a state mine inspector.

WARREN COUNTY.

There are ten mines in this county, nearly all of local character, commonly known as country banks. The coal worked ranges from two feet six inches to three feet six inches in thickness, only one mine having direct railroad shipping connection, hence the production of coal is largely for local use. The mine ventilation is good, four mines using fans, the others having the old furnace method. The hoisting is done entirely with horses on the gin-power principle.

One non-fatal accident occurred in this county during the biennial period. The county produced 41,700 tons of coal and employed ninety men and boys.

MARION COUNTY.

This county, with a record for a large coal production in the past, now promises to figure at the top of the list for large mines, and a large coal tonnage.

The south half of this county seems to be underlaid with a vein of coal ranging in thickness from five feet to thirteen feet. One of the veteran coal operators of the county, Mr. J. A. Powers, formerly of the O. K. coal company, is the pioneer prospector of these large coal deposits and leads in the development. He has opened one shaft and three slopes, all machinery and equipment being of the most improved character. These mines are located some six miles northwest of Bussey and have connections with the Wabash railroad from Tracey, a track running along Cedar Creek, between the hills for about seven miles.

These mines are operated under the very appropriate name of The Manmouth Vein Coal company, which organization has succeeded to the title and properties of the O. K. Coal company, Mr. Powers being continued as the president and general manager, while Mr. A. E. Hollingsworth is secretary, with general offices at Des Moines.

There were three fatal accidents and twelve non-fatal accidents occurred in this county during the past two years. At present there are 575 miners and other employes working in this county. The difficulty now being to find houses for the people coming to these fields; work and wage earnings in this large coal, offering special advantages and inducements. The coal production for the two years is 596,917 tons.

Mr. William Phillips, of Oskaloosa, a life-long coal man, opened up a large mine at Flagler, along the Rock Island railroad, which promised to be a good paying coal producing property. Much money was spent in this development, but the fates of misfortune followed, and Mr. Phillips was obliged to abandon the mine with heavy loss.

The Knoxville Coal company, operating in the vicinity of Flagler, promises much for the coal production of Marion county. Mr. Harry Booth, an old pioneer coal man, is in control of this property. Connections are being made with the Chicago, Burlington and Quincy railroad, and a sort of mining revival is promised in the Flagler vicinity. Mr. Booth has five feet six inches of good coal and a sound roof, which is essential to successful mining.

The Southeastern Coal company has opened, by shaft, a new mine at Hamilton, but at this writing have not succeeded in making any railroad connection. The mine is over 200 feet deep; the coal is five feet six inches thick. The top works and machinery equipment are of the best for a large volume of business; but little progress seems to be made for railroad connection and shipment, consequently there are but few hands employed and little business done.

The mines are all new and the production will, I predict, be astonishingly large during the next two years.

MAHASKA COUNTY.

There are twenty-six mines in this county, worked on the room and pillar plan, employing in the aggregate 1,382 miners and other workmen. The production for the past two years is 1,413,711 tons It has been known for many years as first in coal production, but is fast fading in prominence to the fields of other counties. There were, however, several large new mines opened since the last coal report, located on an extension of the Chicago & Northwestern R. R , Buxton branch, making neighboring coal properties to Mr. Buxton's large mines. Pioneer coal men from What Cheer district have opened new mines under the names of Creston coal company, and the Rex coal company respectively. Large investments have been made by these people. The mine machinery and equipment is of the most modern kinds and a very large coal tonnage is looked for. Each company has a large coal area and have made by prospecting a very thorough canvass of the coal resources of the territory controlled.

The coal field borders on the east of the large coal deposits of Marion county and report an equally thick coal with that operated by the Manmouth Vein Coal Company.

There has been opened a new mine at Colon, operated by the Morrow Coal company, of Oskaloosa. A shaft 128 feet deep has been sunk and the coal is four feet six inches thick. There is good top works and fair equipment. Seventy-eight men are employed, producing about 250 tons per day.

The Spring Creek Coal company, succeeding to the coal properties of the Smith Bros. mine, located five miles northeast of Oskaloosa, have changed the enterprise from a small gin-pit to a steam power railroad shipping mine, and a largely increased tonnage is sure to result from this change.

A number of small mines continue to produce coal in this county, and such will be in evidence for many years to come. There was twenty-five fatal and twenty-five non-fatal accidents reported for the two years.

KEOKUK COUNTY.

This county, including the once far famed mining district of What Cheer, and retaining for years a place with the largest coal producing counties of the state, is fast fading from the roll, and unless some of the many prospectors now at work find better than their present labors indicate, the district of What Cheer and the county of Keokuk is doomed to insignificance in coal mining affairs. There will continue to be several small or country coal banks that can easily be relied upon to supply coal enough for local requirements.

The tonnage report for the two years is 221,412 tons. The number of miners 226. Five fatal and three non-fatal accidents have occurred.

WAPELLO COUNTY.

This county employed during the past two years 765 miners and other workmen.

The tonnage reported to this office is 684,094 tons for the two years.

The county still retains its position as a large coal producer and promises to continue prominent in coal production for years to come. The following companies have opened new mines: The Anchor Coal company, a shaft at Laddsdale. The Phillips Fuel company of Ottumwa, a shaft west of their old No. 4 mine, now abandoned, and the Ottumwa Brick and Construction company, a shaft south of the Roseland Coal company, near Ottumwa. These new enterprises are equipped with modern machinery and are capable of handling a large tonnage.

There are several mines in South Ottumwa that have no railroad shipping facilities and furnish the local market. This local business has grown to large proportions and is constantly increasing. To meet such requirements the local mines have made much needed improvements.

Accidents for two years: Three fatal and twelve non-fatal.

VAN BUREN COUNTY.

This county, which is in the southeastern part of the second district, as now comprised, has been producing coal for many years There are several mines in operation, furnishing employment to seventy-two men and has produced 35,456 tons of coal during the two years reported for.

The coal is of uniform thickness from three feet to three feet six inches, and is reached by shaft at a depth of from fifty to eighty-five feet. All of these mines are situated along the Rock Island road, near the towns of Doud Station and Farmington. The greater portion of the output of coal is consumed locally in the towns named. Ventilation is principally by furnace and like Davis and Jefferson counties is ample for all the requirements.

JEFFERSON COUNTY.

This county is a small producer of coal, having but four small mines and all are country banks located in the vicinity of Fairfield. Employment is furnished to twenty-eight men throughout the fall and winter season. The production reported is 8,785 tons. The coal commands a very good price in the home market. Ventilation is by furnace.

DAVIS COUNTY.

There are four mines located in this county in the vicinity of Eldon. Three of them are drift openings and one a shaft, furnishing employment during the last biennial period to sixteen men. The coal production is 7,050 tons. None of the mines in this county have railroad facilities for shipping and have therefore to depend entirely upon the local market for business. The means of ventilation is by furnace and natural, which seems sufficient.

CONCLUSION

After an experience of sixteen years working in the coal mines of Pennsylvania and Iowa, both in anthracite and bituminous coal, coming from family and social associations of mining life, I naturally took up the duties of a state mine inspector with no small degree of concern and anxiety that my services might be for the greatest possible good to miners and operators. With all possible respect for the capital invested in the coal mining business, I made paramount my object to secure the fullest measure of safeguard for the lives and health of those employed in and about the coal mines of the second district. I pride myself in having secured much improvement in various directions.

Large fans with a permanent capacity for a large volume of air have succeeded in several places the old fan which had scarcely force beyond the requirements of the ordinary or country mine kind. Improvement to air shafts; proper and solid air-tight closing of old crosscuts and headings, good doors and brattices have been installed; that air might travel in sufficient volume to the working places (face) of our miners, driving in rapid force, in the return columns, the poisoned and smoke-laden air, to prevent gas accumulations which fortunately is seldom found in Iowa mines. I work for good air and good ventilation, realizing the truth of the maxim, that "an ounce of prevention is better than a pound of cure."

As to powder, gas or dust explosions: I regard it only necessary for our miners and shooters to exercise care and caution to avert such accidents, so shocking in our mining life, and in this period of modern mining methods; conceding all merit that there may be in the scientific or theoretic recommendations of non-practical men; the remedy is entirely within the province of our laws and the sensible disposition of the mine people to comply with the requirements of the law and the rules laid down to govern, care in handling explosives, judgment in placing shots, and the abandonment of all unreasonably large blasts, careful propping of all working places, the careful timbering of entries and travel ways, bad entries being especially dangerous to drivers hauling coal. A bad joint of rail might cause a car to jump the track, knock out a prop or set of timbers that would cause a fall of rock upon a driver, crushing him to eternity or crippling him for life. In every mine it should be made a rule not to tolerate the presence of heavy smoke along haul-ways or regular traveling gangways.

The co-operation of mine owners, especially between the pit boss and the pit committee on these points, for good air and well timbered gangways, entries and working places and the character of blasts to be made, will mitigate, if not entirely wipe out, accidents and death in our coal mines. I make those recommendations and invite the joint efforts of miners and operators to the same end.

TABLE No. 1.

Showing number of mines, output of coal, number of miners and other employes in District No. 2 for year ending June 30, 1902.

NAME OF COUNTY.	Number of mines.	Total amount of coal produced.	Number of miners.	Number of other employes.	Average number of days worked.
Mahaska	26	734,885	962	438	202
Wapello	13	318,929	414	214	234
Marion	18	303,042	500	147	179
Keokuk	15	138,880	248	78	190
Warren	0	21,435	60	19	186
Van Buren	7	16,713	42	15	203
Jefferson	4	4,785	22	6	120
Davis	4	3,850	18	4	120
Total	97	1,542,519	2,266	921	.....

TABLE No. 2.

Showing number of mines, output of coal, number of miners and other employes in District No. 2 for year ending June 30, 1903.

NAME OF COUNTY.	Number of mines.	Total amount of coal produced.	Number of miners.	Number of other employes.	Average number of days worked.
Mahaska	26	678,826	929	453	188
Wapello	13	365,165	506	259	233
Marion	18	293,875	400	175	202
Keokuk	15	82,532	156	70	174
Warren	10	20,265	65	25	190
Van Buren	7	18,740	52	20	142
Jefferson	4	4,000	13	3	120
Davis	4	3,200	12	4	124
Total	97	1,466,603	2,133	1,009	

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT.

MAHASKA COUNTY.

NAME OF COMPANY.	SUPERINTENDENT.	POST OFFICE ADDRESS.	SHAFT OR SLOPE.	PLAN OF WORKING.	HOW VENTILATED.	POWER USED.	SHIPPING OR LOCAL.
Consolidation Coal Company No. 9	B. C. Buxton	Buxton	Shaft	Room and pillar.	Fan	Steam	Shipping.
Lost Creek Coal Company No. 2	J. Trimble	Lost Creek	Shaft	Room and pillar	Fan	Steam	Shipping.
Regal Coal company	Dan Reigal	Oskaloosa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Whitebreast Fuel Company No. 28	Evan Reese	Pekay	Shaft	Room and pillar.	Fan	Steam	Shipping.
Garfield Coal Company No. 2	J. H. Ramsay	Oskaloosa	Shaft	Room and pillar.	Fan	Steam	Shipping
American Coal Company No. 7	W. T. Phillips	Evans	Shaft	Room and pillar.	Fan	Steam	Shipping.
Oskaloosa Coal and Mining company	John Ramsay	Beacon	Shaft	Room and pillar.	Fan	Steam	Shipping.
Eveland Coal company	John Price	Eveland	Shaft	Room and pillar.	Fan	Steam	Shipping.
Rex Fuel company	C Durfey	Bussey	Shaft	Room and pillar.	Fan	Steam	Shipping.
Morrow Coal company	George Morrow	Oskaloosa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Black Diamond Coal company	George Carlon	Oskaloosa	Slope	Room and pillar.	Jet	Steam	Shipping.
Crescent Coal company	James Chew	White City	Shaft	Room and pillar.	Fan	Steam	Shipping.
Spring Creek Coal company	J. H. Smith	Oskaloosa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Bur Oak Coal company	W. T. Phillips	Olivet	Shaft	Room and pillar.	Fan	Horse	Local.
Coryell & Son Coal company	F. D. Coryell	Eddyville	Slope	Room and pillar.	Furnace	Horse	Local.
Kennebec Coal company	A. Love	Muchakinock	Slope	Room and pillar.	Furnace	Horse	Local.
Atwood Coal company	Jno. Reynolds	Atwood	Slope	Room and pillar.	Furnace	Horse	Shipping.
Barrowmen & Oakley Coal company	R. Barrowmen	Oskaloosa	Slope	Room and pillar.	Natural	Horse	Local.
Schultz Coal company	F. Schultz	Oskaloosa	Slope	Room and pillar.	Furnace	Horse	Local.
Evans Coal company	Mr. Evans	New Sharon	Slope	Room and pillar.	Fan	Horse	Local.
Williams Coal company	W. F. Williams	New Sharon	Slope	Room and pillar.	Furnace	Steam	Local.
Carey Coal company	M. Carey	Rose Hill	Shaft	Room and pillar.	Furnace	Horse	Local.
Raven Coal company	A. B. Little	Oskaloosa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Sowden Coal company	J. H. Sowden	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local.
Patterson & Son Coal company	Wm. Patterson	Leighton	Shaft	Room and pillar.	Furnace	Horse	Local.
Frey Bros. Coal company		Leighton	Shaft	Room and pillar.	Furnace	Horse	Local.

WARREN COUNTY.

D. Utterson Coal company	Wm. Smith	Carlisle	Shaft	Long wall	Furnace	Horse	Local.
Shackley & Bennum Coal company	B. B. Bennum	Somerset	Shaft	Long wall	Fan	Horse	Local.
Welch Coal company	J. E Welch	Somerset	Shaft	Long wall	Fan	Horse	Local.
Somerset Coal company	R. W. Earle	Somerset	Shaft	Room and pillar.	Fan	Horse	Shipping.
Casady & Turnipseed Coal company	Wm. Turnipseed	Somerset	Shaft	Room and pillar.	Fan	Horse	Local.
Bales Coal company	N. D. Bales	Milo	Shaft	Room and pillar.	Furnace	Horse	Local.
Bryant Coal company	S. C. Bryant	Milo	Shaft	Room and pillar.	Furnace	Horse	Local.
Williams Coal company	J. A. Williams	Milo	Shaft	Room and pillar.	Furnace	Horse	Local.
Rowley Coal company	Ed Rowley	Liberty Center	Shaft	Room and pillar.	Furnace	Horse	Local.
Barber & Perkins Coal company	J. T. Barber	Carlisle	Shaft	Room and pillar.	Furnace	Horse	Local.

KEOKUK COUNTY.

Margaret Coal company	Jno. Donavan	What Cheer	Shaft	Room and pillar.	Fan	Steam	Shipping.
What Cheer Fuel company	H. D. Baker	What Cheer	Shaft	Room and pillar.	Fan	Steam	Shipping.
Volunteer Coal company	Thos Thompson	What Cheer	Shaft	Room and pillar.	Fan	Steam	Shipping.
Grudgings Bros. Coal company	Dan Grudgings	What Cheer	Shaft	Room and pillar.	Natural	Horse	Local.
Maxwell Coal company	Robt. Maxwell	What Cheer.	Shaft	Room and pillar.	Natural	Horse	Local.
Graham & Dixon Coal company	David Graham	What Cheer	Shaft	Room and pillar.	Natural	Horse	Local.
Lambert Bros. Coal company	Ed Spavin	What Cheer	Shaft	Room and pillar	Fan	Steam	Shipping.
Bell & Teeters Coal company		Delta	Shaft	Room and pillar.	Furnace	Horse	Local.
O. W. Oliver Coal company	O. W. Olive	Delta	Shaft	Room and pillar.	Furnace	Horse	Local.
M. Fisher Coal company	Martin Fisher	Delta	Shaft	Room and pillar.	Furnace	Horse	Local.
H. Murray Coal company	H. Murray	What Cheer	Shaft	Room and pillar.	Furnace	Horse	Local.

VAN BUREN COUNTY.

Ratcliff Coal Company No. 1	H L. Ratcliff	Douds	Shaft	Room and pillar.	Furnace	Horse	Shipping.
Ratcliff Coal Company No. 2	H. L. Ratcliff	Douds	Shaft	Room and pillar.	Furnace	Horse	Shipping
Finley Coal company	J. A Finley	Douds	Shaft	Room and pillar.	Furnace	Horse	Shipping
Henry Knott Coal company	H. Knott	Farmington	Shaft	Room and pillar.	Furnace	Horse	Shipping.
Sherick & Alfrey Coal company	O. S. Alfrey	Farmington	Shaft	Room and pillar.	Furnace	Horse	Shipping.
Cahill Coal company	P. Cahill	Farmington	Shaft	Room and pillar.	Furnace	Horse	Local.
Carson Coal company	Wm. Carson	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping.

WAPELLO COUNTY.

Phillips Fuel Company No. 5	A. J Eskins	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Anchor Coal company	W. B Williams	Laddsdale	Shaft	Room and pillar.	Fan	Steam	Shipping.

WAPELLO COUNTY—Continued.

NAME OF COMPANY.	SUPERINTENDENT.	POST OFFICE ADDRESS.	SHAFT OR SLOPE.	PLAN OF WORKING.	HOW VENTILATED.	POWER USED.	SHIPPING OR LOCAL.
Carbon Coal company	L. L. Lodwick	Willard	Shaft	Room and pillar.	Fan	Steam	Shipping.
Bear Creek Coal company	Jacob Allen	Bear Creek	Slope	Room and pillar.	Fan	Steam	Shipping.
South Ottumwa Coal company	G. W. Grooms	Ottumwa	Slope	Room and pillar.	Furnace	Horse	Local.
Star Coal company	Wm. Dempster	Ottumwa	Slope	Room and pillar.	Fan	Steam	Local.
Spring Hill Coal company	Chas. Olson	Ottumwa	Shaft	Room and pillar.	Furnace	Horse	Local.
Excelsior Coal company	S. G. Styre	Ottumwa	Shaft	Room and pillar.	Fan	Horse	Local.
Risher Coal company	R. R. Risher	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Local.
Illinois and Iowa Fuel company	Jas. Shevlin	Keb	Shaft	Room and pillar.	Fan	Steam	Shipping.
Roseland Coal company	A. D. Lumsden	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Brown Brothers Coal company	C. W Brown	Keb	Shaft	Room and pillar.	Fan	Steam	Local.
John Daniels Coal company	Jno. Daniels	Ottumwa	Shaft	Room and pillar.	Furnace	Horse	Local.

JEFFERSON COUNTY.

Wm. Hull Coal company	William Hull	Fairfield	Shaft	Room and pillar.	Furnace	Horse	Local.
Bates Coal company	G. W. Bates	Fairfield	Shaft	Room and pillar.	Furnace	Horse	Local.
Gardener Coal company	A Gardener	Fairfield	Shaft	Room and pillar.	Furnace	Horse	Local.
Tweedy Coal company	J. Tweedy	Libertyville	Shaft	Room and pillar.	Natural	Horse	Local.

MARION COUNTY.

Buwalda Bros. Coal company	J. Buwalda	Pella	Shaft	Room and pillar	Steam jet	Steam	Local.
Dielman Coal company	J. R. Dielman	Pella	Shaft	Room and pillar.	Natural	Steam	Local.
Hollingsworth Coal company	E. Hollingsworth	Otley	Slope	Room and pillar.	Furnace	Horse	Local.
Youkon Coal company	J. B. Mezelar	Otley	Slope	Room and pillar.	Furnace	Horse	Local.
Wild Rose Coal and Mining company	G. W. Rupe	Morgan Valley	Shaft	Room and pillar.	Fan	Steam	Shipping.
Dunreath Coal company	W. W. Sulley	Dunreath	Shaft	Room and pillar.	Fan	Horse	Shipping.
Booth Coal company	H. Booth	Knoxville	Slope	Room and pillar.	Natural	Horse	Shipping.
Hayes Coal company	J. T. Hayes	Knoxville	Slope	Room and pillar.	Furnace	Horse	Shipping.
Hawkeye Coal company	L. E. Phillips	Knoxville	Shaft	Room and pillar.	Fan	Steam	Shipping.
Manmouth Coal company	J. A. J. Powers	Hamilton	Shaft	Room and pillar.	Fan	Steam	Shipping.
Southeastern and Iowa Fuel company	R. D. Adey	Hamilton	Shaft	Room and pillar.	Fan	Steam	Shipping.

Miller Coal company	Wm. Miller	Knoxville	Slope	Room and pillar	Furnace	Horse	Shipping.
Cedar Creek Coal company	J. T. Jones	Hamilton	Shaft	Room and pillar	Fan	Steam	Shipping.
Price Coal company	J. R. Price	Otley	Slope	Room and pillar	Furnace	Horse	Shipping.

DAVIS COUNTY.

Sickle Coal company	J. M. Sickle	Eldon	Slope	Room and pillar	Furnace	Horse	Local.
Dye Coal company	G. W. Dye	Eldon	Slope	Room and pillar	Furnace	Horse	Local.
Jordon Coal company	John Jordon	Eldon	Slope	Room and pillar	Furnace	Horse	Local.
Lunsford Coal company	A. C. Lunsford	Lunsford	Shaft	Room and pillar	Furnace	Horse	Local.

Fatal accidents in District No. 2, for two years ending June 30, 1903.

DATE.	NAME.	OCCUPATION.	CAUSE OF DEATH.	MINE WHERE ACCIDENT OCCURRED.	COUNTY.
August 24, 1901	James Glass	Miner	Fall of slate	American	Mahaska.
October 9, 1901	William Golightly	Miner	Fall of coal	Garfield	Mahaska.
October 23, 1901	William Demoss	Miner	Fall of slate	J. P. Price	Marion.
December 27, 1901	John James	Miner	Fall of slate	American	Mahaska.
January -, 1902	Ben Leclain	Miner	Fall of slate	Columbia	Keokuk.
January 24, 1902	John Oleson	Shotfirer	Flying coal	O. K. No. 5	Marion.
January 24, 1902	Michael Fox, Sr.	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Michael Fox, Jr.	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Russell Fish	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Daniel Fish	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John Elder	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	C. Crews	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Samuel Humphrey	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	David Walters	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John Stovall	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	S. C. Crayton	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John Martin	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John Kovall	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	George Pash	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Geo. Denchok	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Alex. Gray	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John McNealey	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Jas. Humphrey	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Jos. Gaspari	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	Frank Gaspari	Miner	Explosion	Lost Creek	Mahaska.
January 24, 1902	John Bert	Miner	Explosion	Lost Creek	Mahaska.
January 25, 1902	Lancelot Walker	Mine foreman	Caught between cage and shaft	Atwood	Mahaska.
January 27, 1902	John B. Leclerg	Miner	Fall of slate	Columbian	Keokuk.
January 28, 1902	John Leclair	Miner	Fall of roof	Columbian	Keokuk.
March 22, 1902	Samuel D. Cooper	Miner	Fall of slate	Roseland	Wapello.
April 26, 1902	Geo. Howard	Driver	Fall of slate	Lambert	Keokuk.
September 26, 1902	Dave Mosely	Miner	Fall of slate	Garfield	Mahaska.
January 29, 1903	Nathan Hollingsworth	Driver	Fall of slate	Johnson & Hollingsworth	Marion.
March 12, 1903	James Baxter	Driver	Found under car	Anchor	Wapello.
March 14, 1903	W. J. Overstake	Miner	Fall of slate	Illinois & Iowa	Wapello
June 4, 1903	Robt. Maxwell, Jr.	Top man	Fell down shaft	Maxwell	Keokuk.

Non-fatal accidents in District No. 2 for two years ending June 30, 1903.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.	MINE WHERE ACCIDENT OCCURRED.	COUNTY
July 30, 1901	Robert Hocking...	Miner	Rib fractured	Fall of slate	American	Mahaska.
August 6, 1901	Peter Ennis	Mine foreman..	Collar bone broken	Fall of slate	Ennis & Co	Marion.
August 17, 1901	John Duskin	Driver	Bruised	Fell under car	American	Mahaska.
August 19, 1901	J. A. S. Reeves	Miner	Bruised	Fall of slate	American	Mahaska.
October 10, 1901	Hugh Cassady	Cager	Left arm broken	Coal falling down shaft	O. K. No. 5	Marion.
December 3, 1901	J. B. Skelton	Cager	Leg broken	Caught between cars	O. K. No. 5	Marion.
December 9, 1901	Chas Maybie	Driver	Collar bone broken	Caught between car and rib	O. K. No. 5	Marion.
January 8, 1902	Garret Rootseller.	Miner	Leg broken	Fall of slate	J. R. Price	Marion.
January 6, 1902	William Green	Miner	Back injured	Fall of slate	Illinois & Iowa	Wapello.
January 13, 1902	William Flemming	Miner	Back injured	Fall of slate	Illinois & Iowa	Wapello.
January 18, 1902	Brice Gibb	Miner	Leg injured	Fall of coal	Illinois & Iowa	Wapello.
January 24, 1902	John Jurkin	Cager	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Geo. Gogo	Miner	Lungs affected by after damps	Explosion	Lost Creek	Mahaska.
January 24, 1902	Jonas Mabie	Driver	Leg broken	Explosion	Lost Creek	Mahaska.
January 24, 1902	Oliver Mabie	Trapper	Arm broken	Explosion	Lost Creek	Mahaska.
January 24, 1902	Chas. Lannan	Driver	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Frank Secress	Miner	Arm broken	Explosion	Lost Creek	Mahaska.
January 24, 1902	Ed. Swanson	Driver	Back injured	Explosion	Lost Creek	Mahaska.
January 24, 1902	William Booth	Trapper	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Wm. Fothergill, Jr	Trapper	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Geo. Fothergill, Jr	Driver	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Mat Aday, Jr.	Trapper	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	William Harvey	Miner	Lungs affected by after damps	Explosion	Lost Creek	Mahaska.
January 24, 1902	Harry Darrock	Driver	Burned	Explosion	Lost Creek	Mahaska.
January 24, 1902	Asa Sullivan	Dumper	Burned	Explosion	Lost Creek	Mahaska.
January 31, 1902	Jas. Muller	Miner	Back injured	Fall of slate	Illinois & Iowa	Wapello.
February 4, 1902	Pete Cascaden	Miner	Scalp wound	Flying coal	American	Mahaska.
February 6, 1902	William Glenn	Miner	Ribs fractured	Fall of slate	O. K. No. 5	Marion.
February 10, 1902	John Holiday, Sr	Miner	Foot broken	Fall of slate	Lambert	Keokuk.
February 25, 1902	Sam Reeser	Driver	Leg broken	Caught between car and rib	O. K. No. 5	Marion.
March 6, 1902	Gus. Carlson	Driver	Leg broken	Fall of slate	O. K. No. 5	Marion.
March 27, 1902	John Holob	Miner	Leg broken	Fall of slate	Garfield	Mahaska.
April 28, 1902	Thos. Toverca, Jr.	Miner	Bruised	Fall of slate	Consolidation No 9	Mahaska.
May 20, 1902	John Harding	Miner	Hand mashed	Fall of slate	Lambert	Keokuk.
June 15, 1902	Wm. Davis	Driver	Cut on head and hand	Fell off car	Eveland	Mahaska.
September 20, 1902	Jess Costa	Miner	Jaw broken	Fall of slate	Bear Creek	Wapello.
September 23, 1902	David Jinkens	Track layer	Head cut	Run over by car	Illinois & Iowa	Wapello.
November 8, 1902	William Nicholson	Trapper	Amputation of finger		Illinois & Iowa	Wapello.
November 12, 1902	Jas. Graham	Miner	Hip crushed	Fall of slate	Carbon	Wapello.
September 27, 1902	Ethel Porter	Miner	Concussion of brain	Flying coal	Consolidation No. 9	Mahaska.
November 18, 1902	P. S. Thor	Miner	Scalp wound	Fall of slate	Lost Creek	Mahaska.

NON-FATAL ACCIDENTS IN DISTRICT NO. 2 FOR TWO YEARS ENDING JUNE 30, 1908—CONTINUED.

DATE.	NAME.	OCCUPATION.	CHARACTER OF INJURY.	CAUSE OF ACCIDENT	MINE WHERE ACCIDENT OCCURRED.	COUNTY.
November 20, 1902	A. Mercer	Miner	Back and leg injured	Fall of slate	Sommerset	Warren.
November 29, 1902	Thos. Simpson, Jr.	Driver	Limbs injured	Car turned over	Illinois & Iowa	Wapello.
December 22, 1902	Geo. Lord	Driver	Leg broken	Caught by car	Roseland	Wapello.
January 7, 1903	Chas. Peterson	Miner	Right hand injured	Fall of slate	Illinois & Iowa	Wapello.
January 12, 1903	Christ Nelson	Driver	Leg broken	Fall of slate	O. K. No. 5	Marion.
February —, 1903	Jas Cowan	Driver	Collar bone broken	Caught between car and post	Margaret	Keokuk.
February 20, 1903	W. M. Daniels	Miner	Arm broken	Loose board on cage	Hawkeye	Marion.
February 28, 1903	Jas. Clarkson	Miner	Bruised	Fall of slate	Morrow	Mahaska.
March 12, 1903	Wm. Little	Miner	Back hurt	Fall of slate	O. K. No. 5	Marion.
May 1, 1903	Wm. Bishop	Miner	Shoulder hurt	Fall of coal	O. K. No. 5	Marion.
June —, 1903	Clarence Howard	Miner	Leg broken	Caught between car and rib	Phillips	Wapello.
June 11, 1903	Francis Chambers.	Driver	Leg broken, spinal column dislocated and internal injuries	Caught between cars	Consolidation No. 9	Mahaska.

THIRD DISTRICT.

LETTER OF TRANSMITTAL.

To the Hon. A. B. Cummins, Governor of Iowa.

Sir,—I have the honor to submit herewith the biennial report, ending June 30, 1903, for the Third Mine Inspection District.

Respectfully,

J. W. Miller.

THIRD DISTRICT.

With one exception the third inspection district remains the same as during the biennial period ending June 30, 1899. Adair County has been placed in the second district and Scott County, formerly in the second district, has been placed in the third district.

The third district is now composed of the following counties: Polk, Jasper, Boone, Webster, Greene, Dallas, Guthrie, Story and Scott.

POLK COUNTY.

This county is located near the central part of the coal field of Iowa and has for a number of years been one among the largest coal producing counties in the state. While coal has been mined in this county for a number of years, each year finds new companies in the field opening up and equipping mines. The local trade being very good in this county, owing to Des Moines, the capital of the state, being located here, there are a number of local mines located in and around Des Moines. These local mines do very little work during the summer months, but during the winter season produce quite a large tonnage and give employment to several hundred men.

The mines located on the various railroads in the county, as a rule, work a greater part of the time during the summer as well as during the winter months.

North of Des Moines and within three miles of the city limits are two large, modern equipped mines, located on spurs from the C. & N.-W. R. R. known as the Saylor Coal company's mine and the Des Moines Coal company's mine. The Saylor Coal company's main shaft, located at Saylorville, is 225 feet deep. The employes in and around the mine average 253. The vein of coal at this mine is from four to five feet in thickness. The Des Moines Coal company's main shaft, located at Marquisville, is 225 feet deep. The vein is from four to six feet thick. About 254 men are employed in and

around this mine. This company is sinking a shaft near Enterprise and expect to open out and equip a mine as rapidly as possible. This mine will be located on the D. M., I. F. & N. R. R.

Northeast of Des Moines and on a switch of the C. G. W. R. R. is located the mine of the Maple Grove Coal company. This company employs about sixty men in and around its mine. The main shaft is 105 feet deep. The vein is about five feet in thickness.

East and north of the Maple Grove Coal company's mine and on the same railroad is located the Norwood Coal company's mine. The main shaft of this mine is 215 feet deep. The vein is from four to five feet in thickness. About 175 men are employed in and around this mine. This company has opened and equipped their mine No. 2, which is located about two miles east of Valley Junction and on the Milwaukee railroad.

The mine known as the Great Western or Highland mine was bought and operated a portion of last winter by the Woodin Coal company. On account of the mine being too expensive to operate it was abandoned in February of this year.

The Gibson Coal company's mine No. 3 that was located east of Des Moines has been abandoned. The company has opened and equipped mine No. 4, two miles west of Altoona and on the C. R. I. & P. R. R. The main shaft is 190 feet deep. The vein is from four to five feet thick. About 100 men are employed at this mine and it promises to be one of the largest producers in the county.

The Smith-Lowe Coal company is operating their mines Nos. 2 and 3 at Carbondale, about five miles southeast of Des Moines. These mines are located on the C., R. I. & P. R. R. Mine No. 4 is being opened and equipped. This company employs about 280 men in and around their mines. The vein of coal is from four to five feet in thickness.

The Christy Coal company's mine that was operated for several years at Youngstown, four and one-half miles east of Des Moines, has been abandoned.

The Co-operative Coal company has abandoned their mine which they formerly operated near Lake Park in Des Moines.

The Bloomfield Coal company's mine north of Des Moines does a very large local business. Their main shaft is 102 feet deep. The vein is about five feet in thickness. During the winter months they employ about 150 men. They do some shipping, the coal being hauled by team to the cars.

Northwest of Des Moines is located the Keystone Coal company's mine, the Eagle Coal company's mine, Center Coal company's mine and the West Riverside Coal company's mine. The vein of coal worked by these companies is about five feet in thickness. While some coal is loaded on cars from these mines, the greater part is sold to local consumers. During the winter season they employ from forty to 100 men each. Near the Eagle Coal company's mine the Madison Coal company has recently opened out and equipped a mine for local trade.

The Glenwood Coal company is operating a mine just north of the state fair ground. The mine was opened and equipped last winter. They expect to supply quite a large local trade.

The Capital Coal company, a new company, has opened and equipped a mine in South Des Moines and are preparing to do a large local business this fall and winter.

The Midway Coal company is operating a mine five miles southwest of Des Moines. They employ about sixty men. The vein is from four and one-half fo five feet in thickness. The depth of their main shaft is 120 feet.

The Flint Brick and Coal company operate a mine in the northwest part of Des Moines. They employ about thirty men. They consume the greater part of their output in connection with their brick yard. During the winter they supply some local trade.

The Oak Park Coal company's mine, located north of Highland Park, Des Moines, employs about fifty men during the winter months. This company depends mostly on local trade.

The Diamond Joe Coal company is operating a mine one mile north of Runnells. They have in their employ about fifty men. This mine is located on the Wabash railroad. Besides the railroad trade they do considerable local business during the winter months.

Evans Brothers have opened and equipped a new mine five miles northeast of Des Moines.

There are a number of local mines, located in various parts of the county, that work only during the fall and winter. These mines depend exclusively on local or country trade.

JASPER COUNTY.

Coal has been mined in this county for a number of years, and some years ago there was a very good tonnage produced; however, it gradually decreased until there were only a few local mines in the county. In recent years the tonnage has been increasing, and from the drilling that has been done during the past two years it is evident that this county's tonnage will be increased very materially during the next biennial period.

The Jasper County Coal Company and the Colfax Coal and Mining Company are now owned by one company, known as the Colfax Consolidated Coal Company. This company has mines No. 6 and 7, located near Seevers, four miles southeast of Colfax, and on their own line of railroad, which connects with the C., R. I. & P. at Colfax. These mines are well equipped and are doing a large shipping business. They employ in and around these mines about 608 men and boys. The main shaft of mine No. 6 is 130 feet in depth and the vein is from five to six feet in thickness. At mine No. 7 the main shaft is fifty-nine feet deep, and the vein from five to six feet in thickness.

There are four or five local mines located near Newton; six or seven in the vicinity of Colfax and several in other parts of the county. These mines depend entirely on local trade.

SCOTT COUNTY.

This county has a number of mines, none of which produce more than 4,000 tons per year. Coal has been mined in this county for a number of years. The mines have always been local mines with no railroad connec-

tions and the tonnage has never been large The mines of this county are located within a radius of five miles of Jamestown, which is about nine miles from Davenport. The Long Coal company has abandoned the mine they operated for several years and is now sinking a new main shaft west of Buffalo. At the Carlon and Buchmeyer mines an escape shaft has just been completed. At the Hanlon mine and the Sass Brothers mine escape shafts are in progress of sinking. The coal averages about three feet in thickness and is worked on the room and pillar plan. These mines are not in operation as much during the summer as during the winter months. A large local trade is supplied by the mines during the winter months. Horse power and furnace ventilation are in vogue at these mines.

BOONE COUNTY.

The mines of this county are worked principally on the long wall plan. The vein is from three to four feet in thickness.

The Boone Valley Coal and Railroad company is operating their Nos. 1, 3, 5 and 6 mines within one mile of Fraser. New air and escape shafts have been provided for these mines, except No. 3, during the past year. The escape shaft for No. 3 is now being provided. This company has its own railroad connecting with the M. & St P. at Fraser Junction and with the C., R. I. & P. at Gowrie. This company is now extending their railway line to Newton, with a view of connecting with the I. C R. R.

West of Boonesboro is located the Crowe Coal company, Boone County Coal company, Risher Coal company and the W. D. Johnson Coal company. These mines all have connection with the C. & N.-W. R. R.

The Zimbleman Coal company and the Heaps Coal company have sold out.

Benson Brothers have abandoned their shaft.

The W. D. Johnson mine has had considerable trouble with a fire that broke out in their mine October, 19, 1902. They are now sinking a new main shaft at the face of the old workings of the Logan mine, which will enable them to increase their tonnage and reduce the cost of handling the same.

There are several small mines located along the river north of Madrid and across the river southwest of Madrid. These mines are small and do only a local business during the winter months.

WEBSTER COUNTY

Webster county lies the farthest north of any of the coal producing counties of the state.

The Crooked Creek Coal and Railroad company is operating their mine No. 5, two and one half miles south of Lehigh. The depth of the main shaft

is twenty-five feet and the vein is about three and one half feet in thickness. They employ during the summer months about fifty men; during the winter months this number is increased. This company owns its railroad connecting with the C. G. W. at Lehigh and C. N.-W. and I. C. at Webster City

The Webster County Coal and Land company is not operating a mine in this county now. The Pleasant Valley Coal company and the Gleason Coal company are operating mines east of Coalville. They have railroad connection with the G. W. R. R. The vein of coal is from five to six feet thick at these mines and is worked by the room and pillar method. They employ about fifty-five men each. The Upper Valley Coal company is operating a mine three miles southwest of Lehigh. They expect to begin sinking an air and escape shaft at once, also to equip the mine with steam power, modern improved machinery and railway facilities. One mile nearer Lehigh Samuel McClure is sinking a new shaft. He is also sinking a new shaft four miles south of Lehigh. The Daily Coal company is operating a mine two and one half miles southwest of Lehigh and on the G. W. R. R. The vein is about three and one half feet thick and about eighty feet in depth.

There are several smaller mines that do a local business during the winter months.

DALLAS AND GUTHRIE COUNTIES.

The coal measures being worked by the mines in these counties are about the same. The coal is mined principally by the long wall method.

The Platt Brick and Coal company who have operated a mine in connection with their brickyard for a number of years have abandoned their mine at Van Meter.

Hutchison Brothers are operating a mine two miles west of Dawson in Dallas county. This mine is equipped with steam power and is ventilated by a fan. The thickness of the vein at this mine is about three and one half feet and the depth of the main shaft is eighty feet. Reese Brothers are operating their mines Nos. 1 and 2 five and six miles south of Madrid. These mines are equipped with steam power.

Near Panora, in Guthrie county, there is one or two mines. Along the river between Guthrie Center and five miles above Fansler there is ten or twelve mines. Northwest of Madrid, in Dallas county, there are several local mines. These mines do very little work during the summer months, as they depend entirely on local trade. During the winter season they work steadily and employ quite a number of men. They have no arrangements at any of these mines whereby coal can be stored for fall and winter trade and, at times, during the winter they have difficulty in supplying the local demand.

GREENE COUNTY.

In this county there are six mines in operation. They are located near Angus. The vein being worked is from four to five feet in thickness. Steam power is used at several of these mines and fan ventilation is most prevalent. Some of the coal produced by the mines near Angus is hauled to the cars for shipment; however, they depend more on local trade, which is very good during the fall and winter.

This county has advantages in shipping to the northern markets that should be quite an inducement for a shipping mine. Several new shafts are being put down southwest of Angus.

The Goodwin Coal company at Grand Junction is doing very little at present, but expect to start up again soon. They operate in connection with their mine a brickyard, and consume a great deal of their own coal.

SCALES.

Sixty-five tests of scales were made during the last biennial period. When scales were found deficient and condemned the companies, with few exceptions, were ready and willing to have them adjusted as soon as possible.

SHOT EXAMINERS.

In compliance with the shot examiners' law, passed by the Twenty-ninth General Assembly, shot examiners have been certified to and employed at all mines where coal is blasted.

One hundred and forty-five men have been certified to as being competent to act in the capacity of shot examiners in this district. With two or three exceptions these examiners have performed their work in a satisfactory and agreeable manner. When it has been demonstrated that an examiner was negligent or careless in the performance of his work his name has been immediately taken off the list.

In some of the mines in this district shot firers are employed to fire the shots after they are examined, the shot examiner, as a rule, also acting as shot firer.

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT.

POLK COUNTY.

NAME OF COMPANY.	SUPERINTENDENT.	POST OFFICE ADDRESS.	SHAFT OR SLOPE.	PLAN OF WORKING.	HOW VENTILATED.	POWER USED.	SHIPPING OR LOCAL.
Des Moines Coal company	Chas. Morris	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Saylor Coal company	Thos. Carpenter	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 2	E. C. Smith	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 3	E C. Smith	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Smith-Lowe Coal Company No 4	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Norwood Coal Company No. 1	Jos. Norwood	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Norwood Coal Company No 2	Jos. Norwood	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Gibson Coal Company No. 4	John Gibson	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Maple Grove Coal company	Charles Swanson	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Bloomfield Coal company	George Yarn	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Diamond Joe Coal company	John Shuler	Runnells	Shaft	Room and pillar.	Fan	Steam	Shipping
Keystone Coal company	E. M Gray	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Eagle Coal company	G. M. Holmes	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Midway Coal company	Charles Carlson	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
West Riverside Coal company	Jos. Jackson	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Flint Brick and Coal company	Mike Quinn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Center Coal company	Isaac Evans	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Oak Park Coal company	Edward Herdman	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
O. K. Coal company	L. M. Mann	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Glenwood Coal company	Caleb Johns	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Elko Coal company	Thos. Beck	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Capital Coal company	Daniel Johns	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Enterprise Coal company	G. E. Walters	Enterprise	Shaft	Room and pillar.	Fan	Steam	Shipping.
Madison Coal company	Wm. Madison	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Evans Brothers Coal company	B. Evans	Des Moines	Shaft	Room and pillar.	Fan	Steam	Shipping.
Avon Coal company	J. W. Hammond	Avon	Shaft	Room and pillar.	Fan	Steam	Shipping.
McKiney Coal company	A. McKiney	Runnells	Slope	Room and pillar.	Furnace	Horse	Local.
Newman Coal and Brick company	Chas Newman	Hastie	Slope	Room and pillar.	Furnace	Horse	Local.
Merchant Coal company	Wm. Merchant	Commerce	Shaft	Long wall	Furnace	Horse	Local.
Bertrand and Tilton	John Tilton	Commerce	Shaft	Long wall	Furnace	Horse	Local.

WEBSTER COUNTY.

NAME OF COMPANY.	SUPERINTENDENT.	POST OFFICE ADDRESS.	SHAFT OR SLOPE.	PLAN OF WORKING.	HOW VENTILATED.	POWER USED.	SHIPPING OR LOCAL.
Crooked Creek Coal company No. 5	F. E. Willson	Webster City	Shaft	Long wall	Fan	Steam	Shipping.
Pleasant Valley Coal company	Jerry Dawson	Kalo	Shaft	Room and pillar.	Fan	Steam	Shipping.
Gleason Coal company	John Gleason	Coalville	Shaft	Room and pillar.	Fan	Steam	Shipping.
Corey Coal company	Reese Stephens	Lehigh	Shaft	Long wall	Fan	Steam	Shipping.
Craig and Dawson	Jerry Dawson	Kalo	Shaft	Long wall	Fan	Steam	Shipping.
Daily Coal Company	M. Z. Williams	Lehigh	Shaft	Long wall	Fan	Steam	Shipping.
Collins Coal company	E. W. Collins	Coalville	Shaft	Room and pillar.	Furnace	Steam	Shipping.
Johnson Coal company	W. J. Johnson	Kalo	Shaft	Long wall	Furnace	Horse	Shipping.
Irwin Brothers	Thos. Irwin	Kalo	Shaft	Long wall	Fan	Horse	Shipping.
Owen Coal company	Frank Owen	Ft. Dodge	Shaft	Long wall	Furnace	Horse	Local.
Morris and McClure Coal company	J. H. Orres	Lehigh	Slope	Long wall	Furnace	Horse	Local,
Upper Valley Coal company	M. C. Kellogg	Lehigh	Shaft	Long wall	Fan	Steam	.....
Martin Coal company	Charles Martin	Moorland	Shaft	Room and pillar.	Furnace	Horse	Local.
Tinnmon's Coal company	Hugh Timmons	Ft. Dodge	Shaft	Long wall	Furnace	Horse	Local.
Bennett Coal company	S. Bennett	Kalo	Slope	Long wall	Furnace	Horse	Local.
Calford Coal company	P. Lochray	Moorland	Shaft	Room and pillar.	Furnace	Steam	Local.
Allen Coal company	T. J. Allen	Moorland	Shaft	Room and pillar.	Furnace	Horse	Local.
Pence Coal company	H. Pence	Lehigh	Slope	Room and pillar.	Furnace	Horse	Local.
Starberry Coal company	J. Starberry	Kalo	Slope	Long wall	Furnace	Horse	Local.

BOONE COUNTY.

Boone Valley Coal & R. R. Co., No. 1	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Valley Coal & R. R. Co., No. 3	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Valley Coal & R. R. Co., No. 5	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Valley Coal & R. R. Co., No. 6	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone County Coal company	Wm. Benson	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
W. D. Johnson Coal company	W. D. Morgan	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Crowe Coal company	Wm. Crowe	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Risher Coal company	T. W. Hughes	Boonsboro	Shaft	Long wall	Fan	Steam	Shipping.
Rodgers Coal company	Geo. Rodgers	Incline	Shaft	Long wall	Fan	Steam	Shipping.
Wilson Coal company	Jas. Wilson	Pilot Mound	Shaft	Room and pillar	Furnace	Horse	Local.
McCormick Coal company	.....	Luther	Slope	Room and pillar.	Furnace	Horse	Local.
Wiscup	.....	Luther	Slope	Room and pillar.	Furnace	Horse	Local.

JASPER COUNTY.

Colfax Consolidated Coal Company No. 6.	Geo. Richards.	Colfax	Shaft.	Room and pillar.	Fan	Steam	Shipping.
Colfax Consolidated Coal Company No. 7.	Geo. Wilson.	Colfax	Shaft.	Room and pillar.	Fan	Steam	Shipping.
Barret Coal company	J. W. Barret	Colfax	Shaft.	Room and pillar.	Furnace.	Horse	Local.
French Coal company	E. P. French	Newton	Shaft.	Room and pillar.	Fan	Steam	Local.
Carson Bros. Coal company	A. Carson	Newton	Shaft	Room and pillar.	Furnace	Horse	Local.
Snooks Coal company.	Thos Snooks	Newton	Shaft.	Room and pillar.	Furnace	Horse	Local.
Lister Coal company	Alfred Lister	Newton	Shaft	Room and pillar.	Furnace	Steam	Local.
Gunther Coal company.	John Gunther.	Colfax	Shaft.	Room and pillar.	Furnace	Horse	Local.
Cavet Coal company	John Cavet	Vandalia	Shaft.	Room and pillar.	Furnace	Horse	Local.
Bruce Coal company.	John Bruce	Monroe	Slope.	Room and pillar.	Furnace	Horse	Local.
Shaw Coal company	Gilbert Shaw	Draper	Slope.	Room and pillar.	Furnace	Horse	Local
Jno. McConeghey.	Jno. McConeghey.	Draper	Slope.	Room and pillar	Furnace	Horse	Local.
Worrick Bros. Coal company	Jas. Worrick	Colfax	Slope.	Room and pillar	Furnace	Horse	Local.

GUTHRIE COUNTY.

Batschlet & Merchant Coal company	John Merchant	Panora	Shaft.	Long wall	Furnace	Horse	Local.
King & Stoddard Coal company	E. E. Stoddard	Bayard.	Shaft.	Long wall	Furnace	Horse	Local.
Morris & Perkins Coal company	Thos. Morris	Fansler	Shaft.	Long wall	Furnace	Horse	Local.
Mallon Coal company.	M. Mallon.	Fansler	Shaft.	Long wall	Furnace	Horse	Local.
Scott Coal company.	W. H. Scott.	Fansler	Shaft.	Long wall	Furnace	Horse	Local.
Cooper Coal company	J. C. Cooper	Fansler	Slope.	Long wall	Furnace	Horse	Local.
Sipe & Mansell Coal company	John Mansell	Fansler	Shaft	Long wall	Furnace	Steam	Local.
Clipper Coal company.	Wm. Merchant	Fansler	Shaft.	Long wall	Furnace	Horse	Local.
Reese Coal company	David Reese.	Panora.	Shaft.	Long wall	Furnace	Horse	Local.
Paul Coal company	Jas. Paul	Fansler	Shaft.	Long wall	Natural	Horse	Local.
Butler Coal company	T. J. Butler	Fansler	Shaft.	Long wall	Natural	Horse	Local.
Raner Coal company	C. C. Raner	Fansler	Shaft.	Long wall	Natural	Horse	Local.
Chapple Coal company	Richard Chapple	Jamaica	Shaft.	Room and pillar.	Natural	Horse	Local.

DALLAS COUNTY.

Griscoe Coal company	Thos. Grisco	Madrid.	Slope.	Room and pillar.		Horse	Local.
Knox Coal company.	Wm. Knox	Madrid.	Slope.	Room and pillar.		Horse	Local.
Vernon Coal company	G. W Mongin	Madrid.	Slope	Room and pillar.	Natural	Horse	Local.
Reese Bros. Coal Company No. 1.	W. J. Reese	Madrid	Shaft	Room and pillar.	Jet	Steam	Local.
Reese Bros Coal Company No. 2	W. J. Reese.	Madrid.	Shaft.	Long wall	Fan	Steam	Local.
Hutchison Coal company	W. C. Hutchison	Dawson	Shaft.	Room and pillar.	Fan	Steam	Local.

SCOTT COUNTY.

NAME OF COMPANY.	SUPERINTENDENT.	POST OFFICE ADDRESS.	SHAFT OR SLOPE.	PLAN OF WORKING.	HOW VENTILATED.	POWER USED.	SHIPPING OR LOCAL
Hanlon Coal company	John Hanlon	Jamestown	Shaft	Room and pillar.	Furnace	Horse	Local.
Langwith Coal company	E. T Langwith	Jamestown	Shaft	Room and pillar.	Furnace	Horse	Local.
Sass Bros. Coal company	Wm. Sass	Jamestown	Shaft	Room and pillar.	Furnace	Horse	Local.
Couch Coal company	Theo. Couch	Buffalo	Shaft	Room and pillar.	Furnace	Horse	Local.
Long Coal company	L. Long	Jamestown	Shaft	Room and pillar.	Furnace	Steam	Local.
Clintner Coal company	M. H. Clintner	Jamestown	Shaft	Room and pillar.	Furnace	Steam	Local.
Buchmeyer & Carlon Coal company	Jno. Buchmeyer	Jamestown	Shaft	Room and pillar	Fan	Steam	Local.

GREENE COUNTY.

Willow Grove Coal company	H A. McElhaney	Angus	Shaft	Long wall	Fan	Steam	Local.
Goodwin Coal company	Thos Goodwin	Grand Junct'n	Shaft	Long wall	Fan	Steam	Shipping.
Buckeye Coal company	Mike Fifch	Angus	Shaft	Long wall	Fan	Steam	Local.
Ditchburn Coal company	Robt Ditchbu n	Angus	Shaft	Long wall	Fan	Horse	Local.
Thomas Coal company	H. L. Thomas	Angus	Shaft	Long wall	Fan	Steam	Local.
Keystone Coal company	W. M. Bennett	Angus	Shaft	Long wall	Furnace	Horse	Local.

TABLE No. 1.

Showing number of mines, output of coal, number of miners and other employes in District No. 3 for the year ending June 30, 1902.

NAME OF COUNTY.	Number of mines.	Total amount of coal produced.	Number of miners.	Number other employes.	Average number of days worked.
Polk	30	981,610	1,264	487	214
Boone	17	296 300	680	211	169
Jasper	17	232,000	358	95	188
Webster	16	182,477	255	190	226
Dallas	7	34,750	83	38	218
Scott	12	2[illegible],973	106	18	190
Guthrie	12	17,250	121	39	196
Greene	4	16,192	46	16	209
Story	1	2,200	9	3	140
Total	118	1,653,152	2,882	996	.....

TABLE No. 2.

Showing number of mines, output of coal, number of miners and other employes in District No. 3 for the year ending June 30, 1903.

NAME OF COUNTY.	Number of mines.	Total amount of coal produced.	Number of miners.	Number other employes.	Average number of days worked.
Polk	25	906,573	1,127	488	222
Boone	12	288,055	480	165	225
Jasper	13	323,[illegible]12	508	182	200
Webster	10	159,900	280	104	165
Dallas	6	19,900	75	35	150
Scott	7	18,280	80	12	180
Guthrie	13	16,515	75	15	200
Greene	6	12,711	53	9	195
Total	92	1,835,456	2,681	1,010	.....

TABLE NO. 3.

Showing the output of coal of the counties comprising District No. 3 for the past five years.

COUNTIES.	1899	1900	1901	1902	1903
Boone	371,410	281,180	302,800	286,300	288,055
Dallas	13,600	18,090	20,400	34,750	19,990
Greene	22,600	11,850	12,400	16,192	12,711
Guthrie	16,400	17,700	16,750	17,250	16,545
Jasper	184,800	159,200	134,500	153,400	323,312
Polk	790,410	854,500	938,600	981,610	996,573
Scott	11,800	19,650	22,469	28,973	18,280
Story	9,000	5,300	3,200	2,200	
Webster	187,650	156,400	167,300	132,477	154,990

ACCIDENTS.

During the past two years thirty-two non-fatal accidents have been reported to this office by the various companies. Doubtless other accidents have occurred, but not reported on account of not being of sufficient importance or through lack of attention on the part of the company.

Eighteen fatal accidents have occurred during the past two years.

Following is a summary account of each fatal accident occurring during the past two years:

Fatal accidents in District No. 3, for the two years ending June 30, 1903.

DATE.	NAME.	OCCUPATION.	LOCATION.	NAME OF COMPANY.	CAUSE OF CASUALTY.
July 18, 1901	Freeman Wade	Miner	Marquisville	Des Moines Coal and M. Co.	Fall of roof.
August 30, 1901	Jno. Mehalwick	Miner	Saylorville	Saylor Coal company	Flying coal.
September 6, 1901	Jno. Jacquith	Miner	Des Moines	Christy Coal company	Flying coal.
November 7, 1901	Jno. Enburg	Driver	Lehigh	Crooked Creek C. and R. R. Co	Fell down shaft.
November 25, 1901	James Cox	Miner	Des Moines	Midway Coal company	Fall of coal.
December 17, 1901	Alenzo Pirozolla	Miner	Des Moines	Bloomfield Coal company	Fall of coal.
January 10, 1902	James Burgess	Miner	Lehigh	Webster County C. and L. Co.	Fall of coal.
February 25, 1902	Jos. Tumas	Miner	Seevers	Colfax Consolidated Coal Co.	Fell under car.
May 1, 1902	Lewis Watkins	Miner	Des Moines	Bloomfield Coal company	Fall of roof.
May 7, 1902	John Jones	Miner	Saylorville	Saylor Coal company	Flying coal.
June 9, 1902	Peter Peterson	Miner	Norwoodville	Norwood Coal company	Flying coal.
June 25, 1902	John Emanuel	Miner	Saylorville	Saylor Coal company	Fall of slate.
June 30, 1902	James Jones	Miner	Saylorville	Saylor Coal company	Fall of slate.
September 27, 1902	John Allen	Miner	Altoona	Gibson Coal company No. 4.	Flying coal.
December 11, 1902	John Braniff	Miner	Norwoodville	Norwood Coal company	Fall of slate.
December 27, 1902	Swan Peterson	Miner	Des Moines	Midway Coal company	Fall of slate.
January 9, 1903	N. B. Logsdon	Miner	Saylorville	Saylor Coal company	Fell down shaft.
February 17, 1903	Richard Gutherie	Miner	Des Moines	Midway Coal company	Fall of slate.

Non-fatal accidents in District No. 3, for biennial period ending June 30, 1903.

DATE.	NAME.	NAME OF COMPANY.	LOCATION.	OCCUPATION	CHARACTER OF INJURY.	CAUSE OF ACCIDENT.
July 25, 1901	Joe Wilson	Norwood Coal company	Norwoodville	Miner	Leg broken	Fall of slate.
July 30, 1901	Robt. Hughes	Smith-Lowe Coal Co. No. 3	Carbondale	Miner	Leg broken	Fall of slate.
Aug. 29, 1901	J. H. Jinkins	Jasper Co. Coal Co. No. 6	Seevers	Miner	Small bone in leg broken	Fall of slate.
Oct. 31, 1901	John Pearson	Jasper Co. Coal Co. No. 6	Seevers	Timberman	Back sprained	Fall of slate.
Oct. 31, 1901	Harry Gibison	Jasper Co. Coal Co No. 6	Seevers	Miner	Ankle sprained	Fall of slate.
Nov. 9, 1901	Ed Johnson	Keystone Coal company	Des Moines	Miner	Leg broken	Flying coal.
Nov. 11, 1901	Wm. Witchie	Midway Coal company	Des Moines	Miner	Leg broken	Fall of slate.
Nov. 28, 1901	Tom Davison	Jasper Co. Coal Co. No. 6	Seevers	Miner	Left side, ribs and foot sprained	Fall of clay.
Jan. 25, 1902	W. Thomas	Eagle Coal company	Des Moines	Miner	Face and hands burned	Blown out shot.
Jan. 27, 1902	Emil Gustavson	Smith-Lowe Coal Co. No. 3	Carbondale	Miner	Face and hands burned	Blown out shot.
Jan. 27, 1902	Geo. Phillips	Smith-Lowe Coal Co. No 3	Carbondale	Miner	Face and hands burned	Blown out shot.
Jan. 27, 1902	Wm. Newton	Smith-Lowe Coal Co. No. 3	Carbondale	Timberman	Face and hands burned	Blown out shot.
April 10, 1902	Arthur Johnson	Saylor Coal company	Saylorville	Oiler	Leg broken	Trying to ride tail chain.
April 24, 1902	John Lind	Bloomfield Coal company	Des Moines	Miner	Rib broken	Fall of slate.
May 7, 1902	Walter Clark	Smith-Lowe Coal Co. No. 3	Carbondale	Fireman	Hand crushed	Caught in engine.
May 7, 1902	Robt. Heathcote	Des Moines Coal company	Marquisville	Miner	Bruised	Flying coal.
May 8, 1902	Harry Hughes	Colfax Con. Coal Co. No. 6	Seevers	Miner	Injured internally	Fall of slate.
May 18, 1902	Mich. Burris	Colfax Con. Coal Co. No. 6	Seevers	Miner	Bruised	Fall of slate.
May 19, 1902	James Diggle	Colfax Con. Coal Co. No. 6	Seevers	Driver	Leg broken	By trip.
July 24, 1902	I. S. Blackmore	W. D. Johnson Coal Co.	Boonsboro	Driver	Rib Broken	Dragged between cars.
Aug. 20, 1902	Alex. North	Goodwin Coal company	Grand Junct.	Miner	Rib broken	Fall of slate.
Sept. 23, 1902	Chas. Bowers	Colfax Con. Coal Co. No. 6	Seevers	Miner	Leg broken	Fall of slate.
Oct. 7, 1902	James Hutt	Des Moines Coal company	Marquisville	Shot firer	Leg broken	Flying coal.
Oct. 10, 1902	F. Arrowwood	Des Moines Coal company	Marquisville	Trapper	Bones in foot fractured	Fall of slate.
Oct. 31, 1902	H. Smith	French Brothers	Newton	Miner	Ankle bone broken	Cage dropped.
Jan. 5, 1903	Walter Foreman	Des Moines Coal company	Marquisville	Driver	Ribs broken	Car ran on him.
Jan. 13, 1903	Fred Herdman	Smith-Lowe Coal Co. No. 2	Carbondale	Miner	Scalp wound	Flying coal.
Jan. 15, 1903	Juel Jonson	Pleasant Valley Coal Co	Coalville	Miner	Back bone fractured	Fall of coal.
Jan. 23, 1903	Thomas Holland	Saylor Coal company	Saylorville	Miner	Leg crushed	Fall of slate.
Jan. 30, 1903	P. Ward	Smith-Lowe Coal Co. No. 2	Carbondale	Driver	Collar bone broken	Caught between car and roof.
Feb. 8, 1903	Frank Harris	Norwood Coal company	Norwoodville	Miner	Collar bone broken	Ran into trip.
March 10, 1903	Frank Jones	Smith-Lowe Coal Co. No. 2	Carbondale	Shot firer	Face and hands burned	Flames from shot.

FREEMAN WADE.

In the Des Moines Coal and Mining company's mine, located at Marquisville, in Polk county, on July 18, 1901, about three o'clock P. M., Freeman Wade, a miner twenty-seven years of age was killed in his room, No. 16, off the fourth east entry off the fifteenth south entry, by fall of roof. Mr. Wade went into his room to sound the roof and it fell, as he struck it with his pick, and crushed him. He was taken to the Methodist hospital in Des Moines and died there about 11:35 P. M., July 18th. Mr. Wade was aware that the roof was loose and had been warned by several not to go in his room. He was a single man.

JOHN MEHALIWICK.

On August 30, 1901, about 11:30 A. M., John Mehaliwick, a miner about fifty years of age, was killed in room No. 11, sixth east south entry, in the Saylor Coal company's mine, located at Saylor, in Polk county. Deceased and partner had two shots which they lit and went out to wait until they went off. One shot exploded, and after waiting they returned to the room to see why the second shot did not go off. When he reached the shot it exploded and killed him instantly. Deceased's family except one boy reside in Austria.

WILLIAM JACQUITH.

While working, as a coal miner, in the first room off the east entry of the twelfth south in the Christy Coal company's mine, located southeast of Des Moines, in Polk county, William Jacquith received injuries on September 6, 1901, about 11:30 A. M. from which he died.

While Mr. Jacquith and others were passing along the entry, a shot drilled and fired by James Giles, who worked in a room parallel to the entry, blew through the pillar, flying coal struck Mr. Jacquith and he died from the injuries.

JOHN ENBURG.

In the Crooked Creek Coal and Railroad company's mine No. 5, located at Lehigh, in Webster county, John Enburg, a driver, was killed by falling from the first landing to the bottom of the shaft, a distance of about 100 feet, on November 7, 1901.

Mr. Enburg opened the gate and evidently forgetting that it was opened, pushed a car into the shaft and apparently followed the same as both car and man were found at the bottom of the shaft. Deceased leaves a wife and five or six children.

JAMES COX.

James Cox, a miner about sixty years of age, who was employed at the Midway Coal company's mine, located southwest of Des Moines, Polk county, was killed in his room in the fifth east entry of said mine, on November 25, 1901, at about 4:30 P. M.

Mr. Cox and his son had fired two shots and had returned to relight the third, it having failed to go off. The son thinks his father used two squibs

the second time. The blast exploded before he could get away, injuring him to such an extent that he died. Deceased was married and leaves a wife and six or seven children.

ANGELO PIROZOLLA.

Angelo Pirozolla, a miner about twenty-five years of age, employed by the Bloomfield Coal and Mining company north of Des Moines, in Polk county, was injured in his room No. 3, ninth east entry, about 4:30 P. M. on December 17, 1901, and died while being taken to Mercy hospital about 7:30 P. M.

Mr. Pirozolla, not returning from the mine to his boarding house in the evening, two of the men returned to the mine to search for him. He was found alive in his room. His arm was broken, also leg and hip. He said he had lit his shot and a concussion from another shot in an adjoining room put out his light. In the darkness he failed to get out of his room before his shot went off.

JAMES BURGESS.

At 12:30 P. M. on January 10, 1902, at the face of the coal in the sixth place on fuel entry, in the Webster County Coal and Land company's mine, located at Lehigh, in Webster county, James Burgess, a miner, forty-two years of age, came to his death. Mr. Burgess and his partner, Mr. King, prepared their shot for noon firing. Mr. King lit the squib and they both departed for dinner, separating at the switch. Not hearing the explosion Mr. Burgess went back and put in another squib, and that failed. He returned again and put in another squib. After waiting, he went back to put in the fourth squib. When about twenty five feet away No. 3 went off and Mr. Burgess was injured to such an extent that he died at 4:50 P. M. that day.

Mr. Burgess was a single man and leaves a mother.

JOSEPH TUMAS.

Joseph Tumas was killed in his room in mine No. 6 of the Colfax Consolidated Coal company, located three and one-half miles south of Colfax, on February 25, 1902, about 11:30 A. M.

The coal near the face was rising quite rapidly. Mr. Tumas was in the act of getting a car of coal away from near the face of his room so as to fire his shot at firing time. The surroundings where Mr. Tumas was found seemed to indicate that he had fallen under the car, throwing the same off the track, pinning him between a prop and the front end of the car, crushing him internally, from which injuries he died within a short time after being removed.

Mr. Tumas was a single man.

LEWIS WATKINS.

At mine No. 2 of the Bloomfield Coal company, located north of Des Moines, in Polk county, Lewis Watkins, a miner fifty years of age, was injured at 11:30 A. M. on May 1, 1902. Mr. Watkins was a married man

and had a wife and six children. He worked with his brother-in-law, Ed Hawkins, in the north entry. When they entered their entry in the morning they examined the roof and found it loose nearly up to the face. They thought it was just the edge of a thin piece of slate and that it would not require attention until afternoon, so neglected to attend to it. However, it fell and Mr. Watkins received injuries to his spinal column that eventually caused his death, which occurred on May 20, 1902.

JOHN JONES.

John Jones, a miner thirty-three years of age and who was acting, in company with Robert Heathcote, as shot firer, came to his death by being struck by flying coal from a shot in room No. 7 off the tenth east entry, off the first north entry, about 8:30 P. M., May 7, 1902, in Sailor Coal Company's mine.

They had fired several shots before reaching this room. After lighting the fuse they went out and waited for it to burn. After waiting what they thought was long enough they returned to investigate, and upon entering the room the shot exploded. Mr. Jones was injured by flying coal to such an extent that he died shortly afterward.

Mr. Jones leaves a wife and three children.

PETER PETERSON.

Peter Peterson, a miner in the employ of the Norwood Coal company at their mine one and one half miles west of Berwick, Polk county, was killed in his room, No. 9, second west of said mine on June 9, 1902.

He had two shots to fire. One shot went out but he did not know it; the other shot squibbed. He went back and put the needle in the hole; the shot went off throwing Mr. Peterson about fifteen feet and killing him.

JOHN EMANUEL.

In the Saylor Coal company's mine, located at Saylor, Polk county, five miles north of Des Moines, John Emanuel, a miner aged fifty-five or sixty, who had been in the employ of this company for two years, was accidently killed by a fall of slate in his room, No. 24, fourth east south, at 7:30 A. M., on June 25, 1902. The slate fell from the rib side of his roadway, where he had put in a brushing shot. Evidently he had not taken down all the loose slate and it fell just as he was commencing his work for the day.

Deceased was a widower and leaves a family of two daughters and one son.

JAMES JONES.

James Jones, a miner about thirty years of age, was killed by slate falling on him at 11:30 A. M., on June 30, 1902, in his room, No. 3 off the eighth, east south, in Saylor Coal company's mine, at Saylor, in Polk county.

At this mine every man does his own firing, after the shots have been approved by the shot examiner. When it came his time to fire he told the

man in the place next to him to go ahead. He was missed by the driver and Chas. Meister. When A. Streeter and Chas. Meister went to his room to look for him he was found lying about ten feet from the face of the room with a piece of coal, that weighed about 150 pounds, on his head. The supposition is that his shot failed to go off and he returned to examine it, and that it went off as he was entering the room to investigate.

Mr. Jones was a married man and leaves a wife and two children.

JOHN ALLEN.

John Allen, a miner in the employ of the Gibson Coal company at their No. 4 mine, located one and one half mile west of Altoona, Polk county, was killed by flying coal from a shot, September 27, 1902.

Mr. Allen and his co-worker, Harrison McClintic, had prepared and lit their shot. Going to a place of safety, they thought, they awaited the explosion of the shot. Mr. McClintic was behind a pile of dirt and was uninjured. Mr. Allen, who was standing a few feet away, was struck by flying coal and instantly killed.

JOHN BRANIFF.

John Braniff, a young man aged 19 years, who was working with his father in the Norwood Coal company's mine northeast of Des Moines, in a room at the mouth of the third east entry, north side, was killed while loading a car of coal by a fall of slate in the shape of a h rse back, caused by a slip in the roof, at 11:15 A. M., December 11, 1902.

They had sounded the roof the two days previous and believed the same to be in safe condition. However, like a great many cases, it unexpectedly fell, killing the young man almost instantly.

LINCOLN DAVIS.

In the Saylor Coal company's mine, located at Saylor, in Polk county, on December 10, 1902, about 4:00 P. M., Lincoln Davis, a miner, received injuries from which he died the following day at Mercy Hospital in Des Moines.

Slate fell on him while he was waiting his turn to shoot at the face of his room No. 10, tenth west south entry, breaking his leg and injuring his back.

SWAN PETERSON.

Swan Peterson was killed in the Midway Coal company's mine, two and one half miles southwest of the city of Des Moines, at 3:00 P. M., on December 27, 1902.

He was working in a room with Charles Lext, which room was number three off the eighth, east entry on the south side of the shaft. Mr. Peterson had just finished loading a car and was in the act of shoveling coal from the left hand rib of their room when a piece of slate fell from between two slips, commonly called a horseback, breaking his back and causing internal injuries from which he died shortly after being brought to the surface.

N. B. LOGSDON.

On January 9, 1903, at 5:40 P. M., N. B. Logsdon, a miner in the employ of the Saylor Coal company at Saylor, in Polk county, fell from the ground landing to the bottom of the shaft. He breathed but a few times after striking the bottom.

Mr. Logsdon and his partner, Mr. Thomas, were letting down props. Before the first cage was sent down they sent the cager down and the cage was not returned, although they did not know it. They neglected to put the bar across the shaft. They then loaded a car of props and did not ascertain whether the cage had been returned to the ground landing. The car was pushed into the empty shaft and Mr. Longsdon followed it down. Mr. Thomas caught the center post and thus saved his life.

RICHARD D. GUTHERIE.

Richard D. Gutherie, a miner in the employ of the Midway Coal company, located three miles southwest of Des Moines, was instantly killed by slate falling on him in his room, between 9 and 10 o'clock in the morning, on February 19, 1903.

Mr. Gutherie's attention had been called to the unsafe condition of the roof in his room, but thinking it was safe he failed to put any props up. While he was at work under this loose slate and rock it fell and completely buried him under it.

TWELFTH BIENNIAL REPORT

OF THE

STATE MINE INSPECTORS

FOR THE

Two Years Ending June 30, 1905,

TO THE

GOVERNOR OF THE STATE OF IOWA.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY

DES MOINES:
BERNARD MURPHY, STATE PRINTER.
1905.

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STATE MINE INSPECTORS.

District No. 1. JOHN VERNER, Chariton.
District No. 2. JAMES A. CAMPBELL, Ottumwa.
District No. 3. EDWARD SWEENEY, Des Moines.

BOARD OF EXAMINERS.

FOR MINE INSPECTORS, MINE FOREMEN AND HOISTING ENGINEERS.

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STATISTICS RELATING TO COAL MINING IN IOWA FOR THE TWO YEARS ENDING JUNE 30, 1905.

The steady annual increase in the coal production of the State, which commenced ten years ago, has been continued through the biennial period just closed and it can be said that the coal mining industry of Iowa, while by no means enjoying the high tide of prosperity, has been in fairly satisfactory condition in the recent past.

The increase in tonnage in the year just closed over the year ending June 30, 1904 was unusually high and amounted to nearly 600,000 tons. This gain, however, was not uniform in all parts of the State, in fact; there were heavy losses in some counties. Lucas county showed a loss of 74,000 tons last year; the reduction in the coal output of Keokuk county amounted to 34,000 tons, and Webster county's loss was 33,000 tons. On the other hand, Monroe, Polk, Mahaska, Boone and Marion counties made good gains, Monroe county leading in this respect with an increased production of more than 300,000 tons.

Of the twenty-three coal producing counties in the State, three counties, Monroe, Polk and Appanoose, produced more than three-fifths of last year's output. Eleven counties produced more than 100,000 tons each while the combined coal output of all the remaining twelve counties amounted to but little more than 160,000 tons.

The following tables give the coal producing counties of the State, the number of mines, the coal output and the number of men employed in and around the mines.

Number of mines in operation in each county, their coal output, number of miners and other employes for the year ending June 30, 1904.

Number of mines.	County.	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number employed.	Number.
19	Monroe	1,808,975	2,249	862	418	3,529	1
27	Polk	966,172	1,547	500	280	2,327	2
82	Appanoose	895,759	2,465	547	360	3,372	3
14	Mahaska	530,428	872	226	150	1,248	4
18	Marion	346,629	581	144	81	806	5
16	Boone	345,472	789	169	112	1,070	6
12	Wapello	323,183	531	154	106	791	7
11	Jasper	302,599	477	170	62	709	8
3	Lucas	239,384	388	174	59	621	9
15	Webster	155,323	313	121	47	481	10
10	Wayne	95,424	275	70	42	387	11
8	Keokuk	52,375	80	28	19	127	12
12	Guthrie	29,353	137	11	16	164	13
6	Van Buren	17,844	33	5	15	53	14
4	Page	17,400	86	20	13	119	15
5	Dallas	16,586	49	19	8	76	16
5	Greene	15,898	62	11	7	80	17
13	Adams	15,135	110	9	15	134	18
6	Scott	14,983	54	23	5	82	19
7	Taylor	13,820	51	10	6	67	20
5	Warren	10,637	42	8	9	59	21
1	Jefferson	875	3	.....	1	4	22
1	Davis	125	4	4	1	9	23
300	Total	6,214,379	11,198	3,285	1,832	16,315	

Number of mines in operation in each county, their coal output, number of miners and other employes for the year ending June 30, 1905.

Number of mines.	County.	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number employed.	Number.
20	Monroe	2,117,127	2,697	885	334	3,916	1
30	Polk	1,094,521	1,905	566	334	2,805	2
91	Appanoose	895,480	2,487	633	400	3,520	3
22	Mahaska	676,409	1,071	289	149	1,509	4
15	Boone	422,802	766	272	113	1,151	5
19	Marion	372,855	601	159	80	840	6
12	Wapello	368,029	665	149	106	910	7
12	Jasper	305,027	454	143	74	671	8
4	Lucas	165,256	305	154	59	518	9
11	Webster	122,056	233	95	39	367	10
10	Wayne	104,873	334	79	42	455	11
15	Guthrie	29,416	102	31	17	150	12
15	Adams	19,577	134	13	18	165	13
6	Keokuk	18,191	29	8	7	44	14
6	Greene	17,470	74	23	11	108	15
4	Page	17,166	79	13	9	101	16
9	Taylor	15,651	88	21	12	121	17
5	Dallas	13,599	43	17	10	70	18
6	Van Buren	12,648	24	5	15	44	19
5	Warren	9,483	48	11	9	68	20
4	Scott	5,210	38	14	6	58	21
2	Jefferson	2,050	9	1	2	12	22
3	Davis	1,115	11	6	4	21	23
320	Total	6,806,011	12,197	3,587	1,840	17,624	

Number of mines in each district, their coal output, number of miners and other employes for the year ending June 30, 1904.

District.	Number of mines	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Number 1	131	2,395,470	4,722	1,313	761	6,796
Number 2	72	1,972,523	3,048	948	534	4,530
Number 3	97	1,846,386	3,428	1,024	537	4,989
Total	300	6,214,379	11,198	3,285	1,832	16,315

Number of mines in each district, their coal output, number of miners and other employes for the year ending June 30, 1905.

District.	Number of mines	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Number 1	146	2,347,360	5,010	1,463	777	7,250
Number 2	82	2,448,550	3,572	963	459	4,994
Number 3	98	2,010,101	3,615	1,161	604	5,380
Total	326	6,806,011	12,197	3,587	1,840	17,624

FATAL AND SERIOUS ACCIDENTS

It is very gratifying that the two years just closed show a greater tonnage per life lost than any of the five preceding biennial periods; and what is better, a lower fatality rate per 1,000 employes. Last year's record in this respect is especially pleasing; 283,584 tons of coal were mined for each life lost, and the fatality rate per 1,000 employes reached the low mark of 1.4.

During the year ending June 30, 1904, thirty-one fatal and eighty-four serious accidents occurred in the mines of the State. Last year twenty-four fatal and one hundred serious accidents were reported.

A summary of these accidents, their causes, etc., will be found in the following tables:

Causes of fatal mine accidents in Iowa during the year ending June 30, 1904, and counties in which the accidents occurred.

Cause.	Appanoose.	Monroe.	Lucas.	Wayne.	Page.	Mahaska.	Keokuk.	Polk.	Webster.	Jasper.	Boone.	Total.
Falls of roof or coal	2	7	....	....	1	2	....	4	..	1	1	18
Material falling down shaft	....	....	....	1	1	....		....	....	....	....	2
Explosion caused by shot	....	2	....	....	....	....	....	....	....	....	....	2
Overcome by damp	....	....	1	....	....	....	....	....	..	..	....	1
Crushed by cage	....	1		....	....		....	....	....	....	....	1
Flying coal from shot	....	1	....	....		..	....	1	....	1	....	3
Run over by cars	....	....	....	....	....	....	1	1		....	....	2
Falling from tower	..	....	....	....	....	1	....	....	....	....	....	1
Falling in sump	....	....	....	....	....	..	....	....	1		....	1
Total	2	11	1	1	2	3	1	6	1	2	1	31

Causes of serious mine accidents in Iowa during the year ending June 30, 1904, and counties in which the accidents occurred.

Cause.	Appanoose.	Monroe.	Lucas.	Mahaska.	Wapello.	Keokuk.	Marion.	Polk.	Jasper.	Boone.	Webster.	Scott.	Greene.	Total.
Falls of roof or coal	9	15	...	4	7	....	....	8	2	4	1	1	1	52
Injured by cars	2	5	5	....		....	....	2	2	....	....	....	....	16
Injured by cage	....	7	1	....	....	2	....	....	....	....	....	..		10
Miscellaneous	1	2	....		....	....	1	1	1	....	....	....	....	6
Total	12	29	6	4	7	2	1	11	5	4	1	1	1	84

Causes of fatal mine accidents in Iowa during the year ending June 30, 1905, and counties in which the accidents occurred.

Cause	Appanoose.	Monroe.	Lucas.	Wayne.	Marion.	Mahaska.	Polk.	Boone.	Greene.	Total.
Falls of roof or coal	1	5	1	....	1	....	6	....	1	15
Falling down shaft	1	...	....	....	....	....	....	....	....	1
Crushed by cars	....	....	....	1	....	1	2	...	....	4
Crushed by cage	....	....	....	....	1	...	..	1	...	2
Flying coal from shot	....	....	....	....	....	1	....	....	....	1
Powder explosion	....	...	..	...	...	....	1	....	....	1
Total	2	5	1	1	2	2	9	1	1	24

Causes of serious mine accidents in Iowa during the year ending June 30, 1905, and counties in which the accidents occurred.

Cause.	Appanoose.	Monroe.	Lucas.	Wayne.	Marion.	Mahaska.	Keokuk.	Wapello	Polk.	Jasper.	Boone.	Guthrie.	Total.
Falls of roof or coal	6	20	1	2	5	1	1	5	18	3	1	1	64
Cars	2	8	4	....	2	....	....	....	4	1	....	....	21
Material falling down shaft	1	....	....	....	....	....		....	1	....	....	....	2
Flying coal from shot	....	2	....	...	....	1	....	....	3	....	...	....	6
Burnt by powder	....	....	....		....	....	....	....	1	....	..	....	1
Miscellaneous		1	...	....	....	1	....	....	2	2	....	....	6
Total	9	31	5	2	7	3	1	5	29	6	1	1	100

Fatal and serious accidents in the mines of the State during the year ending June 30, 1904, with relation to coal produced and number of employes.

Districts.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for Each Accident.		Number of Employes.	Number of Employes for Each Accident.	
	Fatal	Serious.		Fatal.	Serious.		Fatal.	Serious.
District No. 1.	13	28	2,395,470	184,267	85,552	6,796	523	243
District No. 2.	8	33	1,972,523	246,565	59,773	4,530	566	137
District No. 3.	10	23	1,846,386	184,639	80,278	4,989	499	217
Total	31	84	6,214,379	200,464	73,983	16,315	526	194

Fatal and serious accidents in the mines of the State during the year ending June 30, 1905, with relation to coal produced and number of employes.

Districts.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for each Accident.		Number of Employes.	Number of Employes for each Accident.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
District No. 1.	7	32	2,347,360	335,337	73,355	7,250	1,036	226
District No. 2.	6	31	2,448.550	408,092	78,985	4,994	832	161
District No. 3.	11	37	2,010,101	182,736	54,327	5,380	489	145
Total	24	100	6,806,011	283,584	68,060	17,624	734	176

Table showing fatal mine accidents in Iowa for the last twelve years, their relation to coal tonnage and employes.

Year.	Number of accidents.	Tons of coal produced.	Tons of coal per accident.	Number of employes.	Fatality rate per 1000 employes.
1894	19	3,777,393	198,810	10,258	1.9
1895	20	3,195,836	159,792	10,992	1.8
1896	22	3,525,490	160,254	11,451	2.
1897	21	3,799,734	190,464	11,678	1.8
1898	26	4,397,722	169,143	10,550	2.5
1899	20	4,949,310	247,466	11,029	1.8
1900	29	5,117,285	176,458	13,041	2.2
1901	27	5,441.863	201,550	13,175	2.
1902	55	5,514,206	100,258	13,002	4.2
1903	21	6,185,784	294,559	13,192	1.6
1904	31	6,214,379	200,464	16,315	1.9
1905	24	6,806,011	283,584	17,624	1.4

BIENNIAL REPORT OF THE

FIRST DISTRICT

COUNTIES COMPRISING THE DISTRICT:

APPANOOSE,	MONROE (part),
LUCAS,	WAYNE,
TAYLOR,	PAGE,
ADAMS.	

JOHN VERNER, INSPECTOR.
CHARITON, IOWA.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit to you herewith the report of the First Inspection District, covering the biennial period ending June 30, 1905.

Very respectfully,

JOHN VERNER,

Inspector First District.

REPORT OF FIRST DISTRICT.

The law of this State provides that the mine inspectors shall meet in their general office in the Capitol biennially on or before August fifteenth preceding the regular session of the general assembly, and make report to the Governor of their official doings, including therein all matters which are especially committed to their charge, etc. To make this report as the law requires, the operators must be called upon for needed information, and it is essential that such information is furnished promptly.

The majority of the coal operators in this district have given this information with commendable promptness, while the considerable minority had to be urged repeatedly before a response could be had. Ninety-three per cent of the blanks sent out were filled out and returned to this office. Reports were received from every mine in Monroe, Lucas and Page county, while two small shipping mines, in Appanoose county, and four local mines in different parts of the district failed to report.

There are no objectionable features about this report and it requires less time to make it than must be given to reports furnished the inspectors in other mining states. It only relates to coal production, number of miners and others employed, number of days the mine worked and a statement of accidents, if any, and I know, from personal observation, that in any rightly regulated mine office the data for any one mine can be compiled in fifteen minutes.

We have no law requiring the operator to make a report to the mine inspector. Nearly all the other mining states have laws, more or less strict and explicit, covering this matter. The Pennsylvania law provides for yearly reports to be made on or before the twenty-fifth day of January and covering the year preceding. The report shall be in such form and give such information regarding a mine as may from time to time be required and prescribed by the inspector of the district. The Kansas law provides for quarterly statements to the mine inspector, not later than ten days after the end of each quarter. The report shall state amount of coal mined, number of miners employed, number of daymen, number of boys, number of days worked, accidents, serious and fatal, and wages paid. The Missouri law prescribes what information must be furnished and provides that the report must be made by the twentieth day of January for the preceding year. Failure to make the report is punishable by a fine of from one hundred to three hundred dollars.

It is very probable that the Iowa legislature, after prescribing that the mine inspector shall make a report to the Governor, will provide the means necessary to facilitate the making of such report, but compulsory legislation

on this point should not be necessary and will not be needed if the operators, who were either slow in making the report or failed to report, will realize that it is preferable to comply with a fair and reasonable request voluntarily, than to be compelled to do so by law.

During the biennial period just closed 493 inspections of the mines in this district were made and twenty-eight scales were tested, and I can say that nearly all the operators have tried to maintain the mines and their equipments in satisfactory condition and that in most cases they have been successful in their efforts.

Nothing occurred in the last two years to disturb the friendly relations existing between the miners and operators. In April, 1904, the miners were idle for a few weeks, but as soon as the wage scale, to prevail until April 1, 1906, was agreed to, work was resumed.

During the biennial period ending June 30, 1903, the mines of the district, as now constituted, produced 4,232,253 tons of coal; during the biennial period just closed the coal production amounted to 4,742,830 tons, showing a gain of 510,577 tons in the last two years. During the year ending June 30, 1904, 2,395,470 tons were mined, and last year's output was 2,347,360 tons.

The following tables give in compact form the number of mines in the counties comprising the district, their coal output and the number of persons employed in the coal industry.

Number of mines in operation in each county, their coal output, number of miners and other employes in District No. 1, for the year ending June 30, 1904.

County.	Number of mines.	Tons of coal of all grades produced.	Number of miners.	Number of other inside employes.	Number of outside employes.	Total number employed.
Appanoose	82	895,759	2,465	547	360	3,372
Monroe (part)	12	1,118,548	1,347	483	266	2,096
Lucas	3	239,384	388	174	59	621
Wayne	10	95,424	275	70	42	387
Taylor	7	13,820	51	10	6	67
Page	4	17,400	86	20	13	119
Adams	13	15,135	110	9	15	134
Total	131	2,395,470	4,722	1,313	761	6,796
Mines in District No. 1 connected with railroads	74	2,275,619	4,267	1,240	665	6,172
Mines local or without railroad connections	57	119,851	455	73	96	624
Total	131	2,395,470	4,722	1,313	761	6,796

Number of mines in operation in each county, their coal output, number of miners and other employes in district No. 1, for the year ending June 30, 1905.

County.	Number of mines.	Tons of coal of all grades produced.	Number of miners.	Number of other inside employes	Number of outside employes.	Total number employed.
Appanoose	91	895,480	2,487	633	400	3,520
Monroe (part)	13	1,129,357	1,583	550	237	2,370
Lucas	4	165,256	305	154	59	518
Wayne	10	104,873	334	79	42	455
Taylor	9	15,651	88	21	12	121
Page	4	17,166	79	13	9	101
Adams	15	19,577	134	13	18	165
Total	146	2,347,360	5,010	1,463	777	7,250
Mines in district No. 1 connected with railroads	80	2,223,022	4,472	1,367	678	6,517
Mines local or without railroad connections	66	124,338	538	96	99	733
Total	146	2,347,360	5,010	1,463	777	7,250

GENERAL CONDITIONS OF THE MINES IN THE FIRST DISTRICT.

In all the new mines opened during the last two years and in many of the older ones, a decided improvement in the system of working them is apparent. This has been made especially manifest in the last year, for while the working time of the mines during the year ending June 30th last was generally considerably less than in recent preceding years, there was but little decrease in the coal output of the district. It is a well known fact that the mining of coal in Iowa very often must be carried on under difficult conditions, such as do not exist in Illinois and the great mining states of the East and South. There the operator may determine even before he opens his mine how its workings shall be arranged and how future development shall be made and nature seldom interferes to prevent the carrying out of his plans. The Iowa mine operator may also have well-considered plans for the opening and working of his mine, but in trying to put his plans into practice he will very likely meet conditions that will completely upset them and force him to rearrange his work to suit these conditions and overcome the difficulties before him as well as he may. That improvements in mining methods under such circumstances can not be easily obtained is readily understood, and that appreciable advance has been made in that direction shows that the progressive and enterprising Iowa mine operator is making the best of his opportunities. Greater care is now shown to avoid the penalty that is exacted from every operator who strives for the largest immediate returns possible, without due consideration and preparation for meeting the future needs of the mine. Mine haulage has been improved, shaft bottoms have been arranged to permit the easier and more rapid handling and caging of coal and improvements on top have kept pace with those made below.

The hoisting machinery at the mines was generally found to be in satisfactory and safe condition. In a few cases I found that hoisting ropes, showing visible signs of injury to the wires, had been permitted to remain in use. The fact that the safety devices were in good working order and would prevent injury to persons conveyed through the shaft, should the rope break, does not warrant the use of defective ropes. Every part of the hoisting apparatus should be kept at all times in the best possible condition, and it is not good mine management to have it otherwise.

In a number of the larger mines using mechanical haulage, separate and convenient traveling roads have been provided and considerable money has been spent to put them in available condition. It may not be practical to provide such separate traveling roads in all mines using mechanical haulage, but if this can not be done, and the haulage roads must be used for travel, there should be adequate safeguards provided to protect the

workmen from injury by the moving cars. Fortunately during the last two years no miner or other undergound employe has been injured while going to or from his place of work. This is a pleasing fact, but is not proof that the traveling roads are now about as safe as they can be made and that further efforts to increase the safety of undergound travel are not needed.

The escape shafts have been kept in fairly available condition, but in some of the drift and slope mines of Appanoose county the escape roads were found to be badly kept. Improvements have been made, however, and will continue, until all these roads are put in such condition as the law prescribes.

Mine stables are now better located and safer than ever before. Stables have been removed from out of the way places to locations where constant supervision is possible, the danger from fire occurring in them has been lessened, and should one occur, means have been provided to subdue it in its incipiency and prevent the smoke reaching the men at work in the mine.

An unusual amount of outside mine property was destroyed by fire during the last two years. On August 19, 1903, the tipple, engine-room, boiler house and blacksmith shop of No. 3 mine of the Centerville Block Coal Company burned down. On August 29th of the same year, the engine-house and part of the trestlework belonging to the Egypt Coal Company was destroyed. The top works of the Star mine in Centerville burned December 11, 1904. On January 7, 1905, the engine and boiler-house of No. 2 mine of the Exline Coal Company was destroyed. The Wapello Coal Company lost the engine and boiler-house of mine No. 4 on January 25, 1905, and on February 4th the top works of mine No. 1 of the Hocking Valley Coal Company burned down. No lives were placed in danger at any time on account of these fires, and operation of all these mines was resumed as soon as the buildings were replaced.

The work done and the improvements made in the last two years to render the mines safe and furnish fair sanitary conditions to the mine workers have been of considerable scope. I am pleased to state that a large amount of this work was done without any urging on my part, and in a few instances only did some operator or mine official show neglect or unwillingness to comply with my request to put and maintain his mine in fairly satisfactory condition.

MINE VENTILATION.

The expectation expressed in my last report that a material improvement in the ventilation of the mines of this district would likely come about in the biennial period just closed, has been realized to a gratifying extent. It is true, there are mines in this district at this time that are not satisfactorily ventilated, but their number is considerably less than it was two years ago and will be still further reduced as rapidly as circumstances will permit. The reason that in the latter cases better progress was not made, was due to the fact that the mines either had not been properly opened and arranged for future needs, or that natural drawbacks and difficulties existed, or that neglect and incompetency in the past on the part of the mine management made the obtaining of immediate satisfactory results very difficult, if not impossible.

It is evident that the operators realize more than ever before the importance of good mine ventilation and the benefits derived from it. Generally they have shown an earnest desire to improve their mines in this respect, and, in some instances, by the use of up-to-date methods, they have succeeded remarkably well.

All the mines in Monroe county (thirteen), belonging in this district, have fan-ventilation. In Appanoose county thirty mines are ventilated by fans, in Lucas county three, and in Wayne county two. The increase in the number of fans in use during the last two years over the number in use during the preceding biennial period, was seven. Nineteen mines (eighteen of them in Appanoose county), with an individual yearly production ranging from 5,000 to 30,000 tons of coal, were ventilated by furnaces. Nearly all the remaining small mines use furnaces, while some of the rather unimportant country mines, working only in the winter season, depend on natural ventilation.

All the new shipping mines, recently opened in this district, have been provided with air shafts of fair dimensions, fans have been or will be erected on them, and the underground workings have been so arranged with regard to future requirements that, with ordinary care and attention, satisfactory ventilation can be had in these mines for years to come.

SCALES.

The mine scales in the district have been kept in fair weighing condition, and if the decreasing number of tests called for is any criterion there has been material improvement in this respect. In the first fifteen months of my work in this district, I tested twenty-three scales, in the year ending June 30, 1904, sixteen, and during last year, twelve. Of the twenty-eight scales tested in the last two years, twenty were found correct and eight required adjustment.

SHOT EXAMINERS AND THEIR WORK.

In my judgment, the shot examiners employed in this district are competent men, a number of them having served with marked efficiency ever since the shot examination law took effect and the record shows that they have done good work. In one or two mines changes in the examining force have been rather too frequent. This frequent change should be avoided, if possible, for it is undoubtedly a correct proposition that the longer a shot examiner of fair ability stays in service, the more reliable will be his judgment and the more competent he will become.

The shot examination law has been in force now for more than three years. In the two years preceding the taking effect of the law, attempts had been made to do the blasting with greater safety and shotfirers were employed in some of the mines in this district. Little attention, however, was given to the examination of shots prior to firing them, and during these two years five explosions occurred in the mines employing shotfirers. Six shotfirers lost their lives in these explosions and two were rescued just in time to save them. In the three years following the enactment of the law, with more thorough examination and better safeguards provided, one explosion occurred, resulting in the loss of two lives.

The benefits of the law have been clearly established in Iowa, and its merits have been recognized in other mining states.

FATAL AND SERIOUS ACCIDENTS.

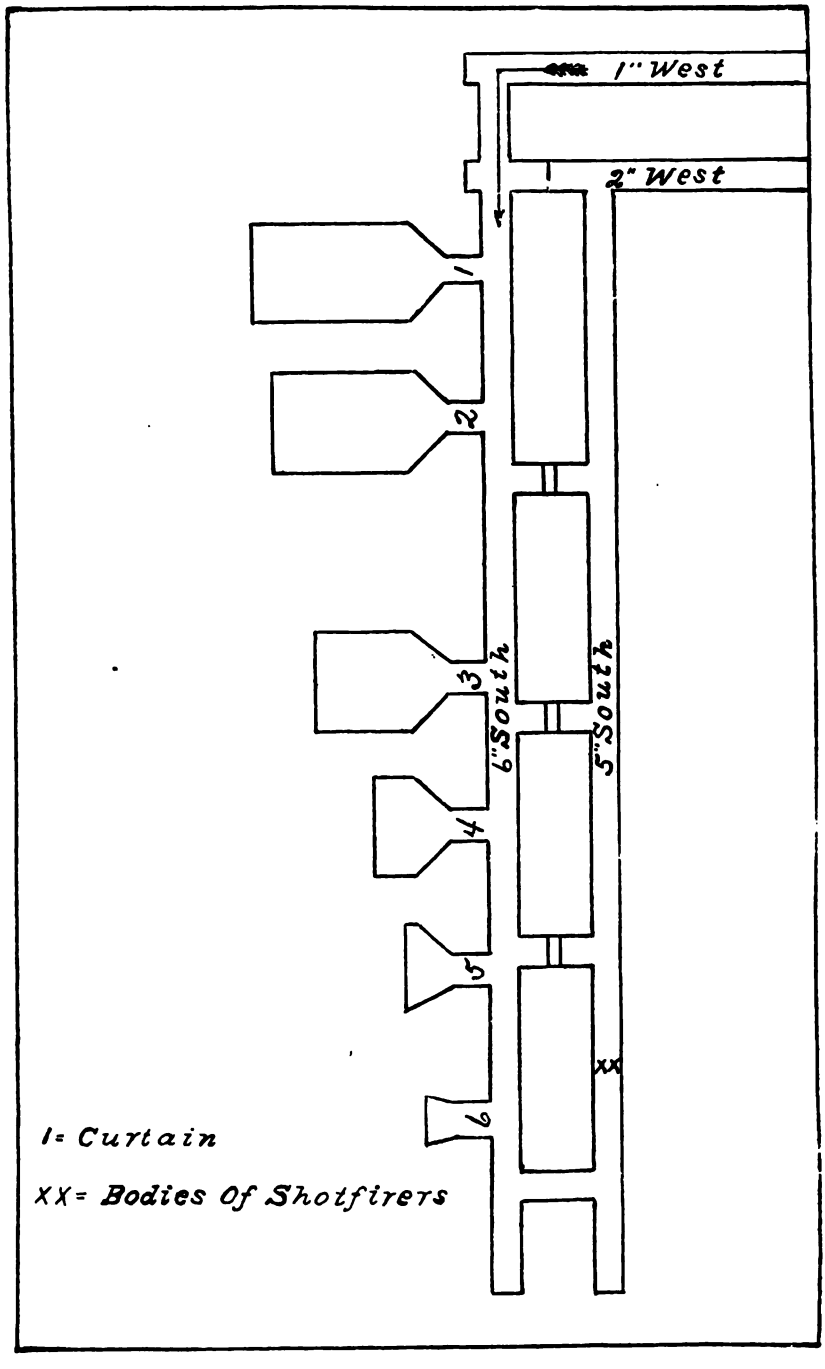
During the year ending June 30, 1904, thirteen fatal and twenty-eight serious accidents occurred in and about the mines of this district. Of the thirteen men killed, seven lost their lives by falls of roof or coal, two were killed by timber or rock falling down the shaft, two by an explosion, one was overcome by damp and one was crushed by a cage. Fifteen of the serious accidents were due to falls of roof or coal, ten persons were injured by cars on the haulage roads, one was caught in a flywheel, one was injured by a cage and one lost an eye through a chip from a steel wedge entering it.

In the last year seven fatal and thirty-two serious accidents were reported. Five of the fatal accidents occurred at the working face and were due to falls of roof or coal, one man was killed by falling down a shaft and one was fatally injured by being crushed between a car and timber on top of the shaft of the Big Jim mine. Twenty-one of the serious accidents were caused by falls of roof or coal, ten persons were injured on the haulage roads and one was injured while descending on the cage by being struck by a part of a safety gate.

In the year ending June 30, 1904, the fatal accident rate per 1,000 employes was 1.9. Last year it was .96.

It seems to be unnecessary to review in detail all of the above accidents, but believing that all available information regarding explosions occurring in this State should be presented, in order that such information may be of some assistance to suggest means to prevent them in the future, I give the results of my investigation of the explosion which occurred on January 25, 1904, in mine No. 6, of the Phillips Fuel Co.

Two lives were lost in this explosion. A. Carlson, the shot examiner and shotfirer, and his assistant, J. W. Stevens, were the victims. Their dead bodies were found on the fifth south entry (see sketch). There is no doubt about the explosion's starting point. It originated in room 6 on the sixth south entry and its occurrence, in my judgment, was largely due to the fact that the shot examiner apparently only considered the shots prepared in the sixth south entry separately as to their safety and failed to recognize the danger that existed in the injudicious manner of firing the shots located in a part of the mine extremely limited in space. The shot which caused the explosion, considered by itself, would probably have been accepted as reasonably safe by any other shot examiner in the district, and, in my judgment, fired by itself, although containing toe much powder for the work done, would not have caused any harm. I believe it was a combination of dangerous conditions existing in and about room 6 when this shot was fired, that made the explosion possible and it was a failure on the part of the shotfirers to notice the existence of these threatening conditions that cost them their lives.


1" West
2" West
1
2
3
4
5
6
6" South
5" South
XX
1= Curtain
XX= Bodies Of Shotfirers

The ventilation in the fifth and sixth south entries was generally good, but as at the request of the shotfirers the fan was stopped when the miners were leaving the mine, there was little, if any, air movement at firing time. It was found that no rooms had been turned on the fifth south entry and that rooms 1 and 2 on the sixth south entry were not working, that shots had been prepared and fired in rooms 3, 4, 5 and 6 and in the sixth south entry and that one shot had been prepared and left unfired in the fifth south entry. It was also established that two shots were fired in room 6. The shotfirers evidently commenced lighting the shots in room 3, and proceeding southward they probably touched off the fuses of the shots in room 6 and the entry at the same time, retiring through the last crosscut to the fifth south entry.

That the explosion originated in room 6 was shown by the fact that, while the loose coal at the mouth of room 5 and the coal thrown by the entry shot was covered with soot and dust, room 6 and its immediate vicinity presented a clean appearance as if it had been swept with a broom. The explosion's force was comparatively small and very little coked dust was found and that only in the immediate vicinity of room 6.

It is, of course, impossible to establish the exact co-relation of forces that brought on the explosion. As it is customary to so regulate the length of fuses, when more than one shot is fired in a place, that the shots may not explode at the same time, it is not probable that the two shots in room 6 exploded together. I believe the shot fired in the sixth south entry was the main factor contributing to the explosion's origin. It was proved that this shot exploded prior to the shot in room 6, the difference in time being very slight and may not have exceeded the fractional part of a second. That being the case, we have this situation: The pressure from the entry shot momentarily retards the dissipation of the heated gases coming from the shot in room 6, their heat is increased and intensified in consequence, additional and ready fuel is provided by the dust swept out of the face of the entry past the mouth of room 6, and the explosion is the result.

The explosion could have been prevented; at any rate there should have been no loss of life. The shotfirers erred in considering the fifth south entry a safe retreat. In close workings shotfirers should never remain on the entry while the shots are being fired close by; it means certain death should any of these shots cause even a slight explosion. They erred also in the manner of lighting the shots; they should have fired the entry shots first, commencing on the fifth south entry. They should have waited until these shots had done their work and then fired the room shots in the sixth south entry, starting in room 6. Their place of retreat should have been room 1 on the sixth south entry.

Fatal accidents in District No. 1, July 1, 1903—June 0, 1904.

Date.	Name of Deceased	Occupation.	Cause of Death.	Employed by—	County.
September 12, 1903	D. Jenkins	Timberman	Fall of slate	Wapello Coal Co	Monroe.
December 8, 1903	L. Maley	Miner	Fall of slate	G. Howard	Page.
December 8, 1903	P. Stancovich	Miner	Fall of slate	Hocking Coal Co	Monroe.
January 1, 1904	C. Villars	Miner	Struck by plank in shaft	Johnston & Co	Page.
January 16, 1904	Wm. Webster	Miner	Fall of black bat	Hocking Valley Coal Co	Appanoose.
January 20, 1904	P. E. Carlson	Miner	Crushed by cage	Hocking Coal Co	Monroe.
January 25, 1904	J. W. Stevens	Shotfirer	Explosion	Phillips Fuel Co	Monroe.
January 25, 1904	A. Carlson	Shotfirer	Explosion	Phillips Fuel Co	Monroe.
January 28, 1904	Geo. Spoler	Miner	Fall of black bat	Peerless Coal Co	Appanoose.
February 20, 1904	J. McCue	Miner	Struck by rock while crossing shaft	Numa Block Coal Co	Wayne.
March 21, 1904	Jas. A. John	Miner	Overcome by damp	Big Hill Coal Co	Lucas.
May 28, 1904	W. H. Mitchell	Miner	Fall of slate	Wapello Coal Co	Monroe.
June 30, 1904	S. Vedo	Miner	Fall of slate	Smoky Hollow Coal Co.	Monroe.

Serious accidents in District No. 1, July 1, 1903—June 30, 1904.

Date.	Name of Injured.	Occupation.	Character of Injury.	Cause of Injury.	Employed by—	County.
July 9, 1903	Ed Brock	Driver	Arm broken	Caught between cars	Smoky Hollow C. Co	Monroe.
July 18, 1903	Fred Taylor	Driver	Leg broken	Run over by car	Whitebreast Fuel Co	Lucas.
August 22, 1903	B. Kauzlasky	Miner	Spine injured	Fall of slate	Thistle Coal Co.	Appanoose
September 9, 1903	T. Lewis	Driver	Arm broken	Thrown from car	Big Hill Coal Co.	Lucas.
September 10, 1903	A. J. Swanson	Driver	Nose and jaw broken	Kicked by mule	Smoky Hollow C. Co.	Monroe.
September 18, 1903	Wm. Holland	Engineer	Four ribs broken	Struck by flywheel	Ill. and Iowa Fuel Co	Appanoose
September 19, 1903	A. Nelson	Miner	Leg broken	Fall of coal	Dewey Coal Co	Appanoose
October 4, 1903	Jas. Burt, Jr	Driver	Leg broken	Mule ran away	Hocking Valley C. Co	Appanoose
October 21, 1903	R. Snodgrass	Miner	Leg broken	Fall of slate	Smoky Hollow C. Co	Monroe.
November 11, 1903	F. Rossi	Miner	Leg broken	Fall of coal	Domestic Coal Co.	Appanoose
November 14, 1903	M. Wranish	Miner	Arm broken	Fall of coal	Ill. and Iowa Fuel Co	Appanoose
November 16, 1903	R. Zimmerman	Miner	Leg broken	Fall of slate	Wapello Coal Co.	Monroe.
December 12, 1903	T. Brennan	Toolman	Leg broken	Caught by cage	Whitebreast Fuel Co	Lucas.
December 24, 1903	H. Miles	Trapper	Leg broken	Run over by car	Whitebreast Fuel Co	Lucas.
January 13, 1904	C. Grenco	Miner	Hips injured	Fall of coal	Mnfrs' C. and C. Co.	Appanoose
January 20, 1904	J. C. Neachem	Driver	Arm broken		Whitebreast Fuel Co	Lucas.
January 27, 1904	F. Quilliane	Laborer	Bone in ankle broken	Fall of slate	Smoky Hollow C. Co	Monroe.
February 9, 1904	F. Hines	Miner	Three fingers cut off	Fall of slate	Smoky Hollow C. Co	Monroe.
February 9, 1904	Wm. Hall	Miner	Leg broken	Fall of slate	Smoky Hollow C. Co	Monroe.
February 20, 1904	C. Babbit	Driver	Thumb cut off	Caught between cars	Big Jo Coal Co.	Appanoose
March 1, 1904	J Henley	Miner	Leg broken	Fall of coal	Anchor Coal Co.	Appanoose
March 2, 1904	Jas. Dawson	Miner	Jaw and nose broken	Fall of slate	Dewey Coal Co.	Appanoose
March 12, 1904	W. Bilterman	Miner	Leg broken	Fall of coal	Smoky Hollow C. Co	Monroe.
March 16, 1904	F. Hand	Pit boss	Back injured	Fall of clod	Hocking Valley C Co	Appanoose
March 21, 1904	J. Bazzaco	Miner	Loss of eye	Struck by piece of steel from wedge	Smoky Hollow C. Co	Monroe.
May 2, 1904	P. Jackson	Driver	Finger cut off	Car jumped track	Smoky Hollow C. Co	Monroe.
June 11, 1904	J. Milos	Miner	Ribs broken	Fall of coal	Big Jo Coal Co.	Appanoose
June 23, 1904	C. Phillips	Coupler	Leg broken	Caught between cars	Whitebreast Fuel Co	Lucas.

Fatal accidents in District No. 1. July 1, 1904–June 30, 1905.

Date.	Name of Deceased.	Occupation.	Cause of Death.	Employed by—	County.
October 21, 1904	F. Felinski.	Miner	Fall of coal	Orr Bros	Appanoose.
January 6, 1905	Ed. Green.	Top boss.	Crushed by car	Numa Block Coal Co	Wayne.
February 2, 1905	P Gallo	Miner	Fell down shaft	Big Jo Coal Co	Appanoose.
March 23, 1905	Thos. Davis	Miner	Fall of slate	Phillips Fuel Co	Monroe.
May 19, 1905	Thos. Dwyer		Fall of slate	Wapello Coal Co	Monroe.
June 20, 1905	C. F. Carter.	Miner	Fall of slate	Whitebreast Fuel Co	Lucas.
June 20, 1905	L. Jones	Miner	Skull broken by post	Hocking Coal Co	Monroe.

Serious accidents in District No. 1, July 1, 1904—June 30, 1905.

Date.	Name of Injured.	Occupation.	Character of Injury.	Cause of Injury.	Employed by—	County.
July 21, 1904	J. Sonoras	Miner	Back dislocated	Fall of slate	Hocking Coal Co	Monroe.
July 29, 1904	H. Kephart	Miner	Head and hips hurt	Fall of slate	Smoky Hollow C. Co	Monroe.
August 20, 1904	J. Farego	Miner	Leg broken	Fall of slate	Smoky Hollow C. Co.	Monroe.
August 24, 1904	C. E. Starkey	Miner	Ankle broken	Fall of slate	Smoky Hollow C. Co.	Monroe.
August 26, 1904	A. Kisela	Miner	Leg broken	Fall of slate	Smoky Hollow C. Co.	Monroe.
November 12, 1904	—. Waldeen	Driver	Ankle broken	Run over by car	Whitebreast Fuel Co.	Lucas.
November 14, 1904	J. B. Williams	Miner	Contraction of leg muscles	Fall of coal	Hocking Coal Co	Monroe.
November 16, 1904	E. Houston	Driver	Dislocation of spine	Run over by car	Mendota C. & M. Co.	Appanoose
November 22, 1904	F. McVeitty	Trapper	Leg crushed	Run over by car	Hocking Coal Co	Monroe.
December 1, 1904	J. Moyle, Jr.	Miner	Leg broken	Fall of slate	Smoky Hollow C. Co.	Monroe.
December 23, 1904	J. Maneeley	Driver	Leg broken	Run over by car	Big Hill Coal Co	Lucas.
December 29, 1904	A. Roberts	Laborer	Leg broken	Fall of rock	Numa Block C. Co	Wayne.
December 31, 1904	T. C. Mongar	Miner	Spine dislocated	Fall of slate	Skidmore Bros.	Lucas.
December 31, 1904	N. Weeks	Miner	Ankle broken	Fall of coal	Peacock Coal Co	Appanoose
January 2, 1905	S. Bragg	Miner	Arm and legs bruised	Fall of coal	Numa Block C. Co	Wayne.
January 15, 1905	H. Bilterman, Jr.	Driver	Leg broken	Struck by car	White Ash Coal Co	Monroe.
January 13, 1905	C. Grenko	Miner	Hips crushed	Fall of coal	Manuf't's C. & C. Co	Appanoose
January 16, 1905	J. Rajick	Miner	Ribs broken	Fall of rock	Whitebreast Fuel Co.	Monroe.
January 20, 1905	D. Nelson	Miner	Collar bone broken	Fall of slate	Star Coal Co	Monroe.
February 1, 1905	D. Wright	Miner	Arm broken	Struck in shaft	J. Shirey	Appanoose
February 4, 1905	R. Greathouse	Miner	Two fingers cut off	Fall of slate	Oriental Coal Co	Appanoose
February 10, 1905	A. Parker	Laborer	Leg broken	Struck by car	Wapello Coal Co.	Monroe.
February 20, 1905	C. Natting	Miner	Hip dislocated	Fall of coal	Centerville B. C. Co.	Appanoose
February 25, 1905	W. Milligan	Driver	Shoulder dislocated	Squeezed by mule	Smoky Hollow C. Co	Monroe.
February 25, 1905	J. Coop	Top laborer	Leg broken	Struck by car	Mendota C. & M. Co.	Appanoose
February 27, 1905	J. Specks	Miner	Leg broken	Fall of coal	Thistle Coal Co.	Appanoose
April 20, 1905	J. Wester	Laborer	Collar bone and ribs broken	Fall of slate	Whitebreast Fuel Co	Monroe.
April 24, 1905	Wm. Brown	Timberman	Rib broken	Fall of slate	Star Coal Co	Monroe.
June 5, 1905	Wm. Bates	Miner	Hip injured	Fall of bat	Appanoose C. & F. Co	Appanoose
June 10, 1905	M. Eaves	Miner	Leg broken	Fall of slate	Wapello Coal Co	Monroe.
June 26, 1905	T. D. Evans	Driver	Hand broken	Caught by car	Whitebreast Fuel Co.	Lucas.
June 29, 1905	D. Harvey	Driver	Foot crushed	Caught between cars	Whitebreast Fuel Co	Lucas.

Fatal and serious accidents in District No. 1, July 1, 1903, to June 30, 1904, with relation to coal produced and number of employes.

County.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for Each Accident.		Number of Employes.	Number of Employes for Each Accident.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
Appanoose	2	12	895,759	447,879	74,646	3,372	1,686	297
Monroe (part).	7	10	1,118,548	159,792	111,854	2,096	299	209
Lucas.....	1	6	239,384	239,384	39,897	621	621	103
Wayne.....	1	.....	95,424	95,424	.....	387	387	.....
Taylor	.....	.....	13,820	.....	.....	67	.....	.....
Page.....	2	.....	17,400	8,700	.....	119	59	.....
Adams	.....	.....	15,135	.....	.....	184	.....	.....
Total.....	13	28	2,395,470	184,267	85,552	6,796	523	243

Fatal and serious accidents in District No. 1, July 1, 1904, to June 30, 1905, with relation to coal produced and number of employes.

County.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for each Accident.		Number of Employes.	Number of Employes for each Accident.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
Appanoose	2	9	895,480	447,740	99,498	3,520	1,760	391
Monroe (part).	3	16	1,129,357	376,452	70,585	2,370	790	148
Lucas	1	5	165,256	165,256	33,051	518	518	104
Wayne.....	1	2	104,873	104,873	52,436	455	455	227
Taylor	....	.....	15,651	.....	.....	121	.....	.....
Page	.....	.....	17,166	.....	.....	101	.....	.....
Adams.....	....	.....	19,577	.....	.....	165	.....	.....
Total	7	32	2,347,360	335,337	73,355	7,250	1,036	226

THE NEED OF NATIONAL ASSISTANCE IN THE PREVENTION OF MINE ACCIDENTS.

About thirty-five years ago the first steps were taken in Pennsylvania to bring its anthracite mines under State supervision. Since that time all the principal coal producing states have adopted laws regulating the operation of coal mines within their borders, with the view of securing an increased measure of safety for the persons employed therein, and officials have been provided by these states to see that the requirements of these laws are complied with. Under State supervision the sanitary condition of the mines has been much improved, appliances and devices affording the miner greater safety and facility in entering or leaving the underground workings, are in evidence everywhere, efforts have been and are being made by the different State governments to give reasonable protection to the miner, while at work, yet, notwithstanding all this, the yearly death rate due to accidents in the coal mines of the United States remains alarmingly high, and judging from the evidence of recent events, there seems to be little hope, under the present order of things, that the future will show any appreciable reduction in this respect.

It appears that this state of affairs can only be accounted for in two ways: there is either a lack of knowledge as to what is required to make the mines more safe, or, such knowledge existing, willful and criminal negligence must be the cause. That some mine accidents have been due to neglect, and that in a very few instances this neglect may have been almost criminal, is probably true, but there is absolutely no foundation to sustain the charge that the high rate of mine fatalities in the United States in recent years has been due to widespread and universal neglect to provide adequate means for their prevention. There is no reason for believing that the mine operator in America is less humane than the mine operator in England or Germany, or that he feels less concern for the welfare and safety of the persons in his employ, and the only conclusion that presents itself is that it is not neglect but lack of sufficient knowledge of the hidden dangers of the mines that stands out as the obstacle that must be overcome before there can be hope for an appreciable reduction in the number of mine accidents in the United States. It is a true proposition that in order to overcome danger successfully, its existence, cause and nature must be well understood.

One of the principal causes of the high fatality rate in the mines of the United States has been due to the alarming frequency of disastrous explosions in mines containing little or no firedamp. After the occurrence of one of these so-called dust explosions the charge is often made and generally accepted as true, that the explosion was caused by carelessness, negligence or disregard of mining laws and mine rules. The truth is, that possible negligence. carelessness, etc., were only contributory factors and that the main cause, the principal factor that made it possible for such explosions to follow each other in rapid succession from Utah to Pennsylvania and from Iowa to Alabama, was inability to recognize and understand the existence of the danger.

It was not neglect of any kind, it was lack of information and knowledge regarding these explosions that caused the loss of two hundred lives in the mines at Scofield, Utah. The miners going to their work on the morning of May 1, 1900, were apparently confident that the mine they were entering was as safe as any mine in the United States; they, no doubt, believed that, with the exercise of ordinary care and watchfulness in doing their work at the face, no serious mishap would befall them, the mine officials believed that everything was all right, yet a few hours later the mine was wrecked and two hundred lives were lost. The surviving miners and the mine officials could not understand it, they could not account for this great calamity. Mining had been carried on in that locality for a number of years, with only the ordinary loss of life incident to mining, mine No. 4, where the explosion originated was in good condition, well ventilated and the requirements of the mining law had been fully complied with. Men with extensive experience in mines and mining, who worked in this mine, testified that it was free from gas, that they never thought of the possibility of an explosion and that they considered the mine perfectly safe. Why were these men and mine officials ignorant of the dangerous condition of the mine, why did they feel so secure, when a long record of explosions in other mines in different parts of the country, apparently as safe as this one, should have impressed upon them the need of caution and sufficient investigation to ascertain whether or not their mine really was as safe as they believed it to be? Why did they not profit by the lessons of disaster presented in other states? Presumably it was for the same reason that prevented Iowa, Tennessee, West Virginia, Alabama and other mining states from deriving any benefit from the lesson taught by the great calamity of Scofield, Utah. The opportunity to secure this benefit was lacking.

The good results coming from the centralizing of efforts to lessen the hazard to life incident to mining are readily recognizable in England, Germany and other coal producing countries of Europe, and it is a matter of regret that so far no efforts have been made in the United States to profit by their example. If these explosions are to be averted in the future, as I believe they can be, and a general safer condition of the mines brought about, it must be done through the assistance of the National Government and by the creation of a National bureau of mine accidents. The scope of such bureau should include the furnishing of statistics relating to mine accidents occurring in the United States, the investigation of all accidents through which a number of lives were lost, the special investigation of every explosion, the making of tests and experiments and the providing of useful information and advice. This bureau should be a central source of education and information, of such reliability and trustworthiness, that its teachings and advice will be readily accepted and followed by the mining interests and governments of every mining State and Territory in the Union. The United States, producing nearly two-fifths of the world's annual coal supply, with its widely spread coal fields with their diverse conditions and mining methods, with inspection service in every mining State, affords unequalled opportunities for successful work by the government experts, with the almost sure promise that results will be entirely satisfactory to all.

The plea that the individual mining states can deal with this question successfully, is no longer tenable. The proof to the contrary is too overwhelming. Individual efforts are too uncertain and often futile, there must be co-operation to get results and get them quickly, and such co-operation can only be carried on successfuly with the help of the National Government. For humane as well as economic reasons the question of the creation of a National bureau of mine accidents should receive the early and favorable consideration of Congress.

APPANOOSE COUNTY.

Last year ninety-one mines were operated in Appanoose county. Sixty-two of these mines are connected with the railroads running through the county. Twenty-six mines are connected with the Chicago, Milwaukee & Saint Paul railroad, twenty-five with the Burlington, two with the Iowa Central and nine with the Chicago, Rock Island & Pacific. The remaining twenty-nine mines have no railroad connections and are generally operated in a small way to supply home demand, although a few of them ship part of their output.

The majority of the mines were operated a less number of days last year than the preceding year, and no surprise would have been felt had last year's coal output shown a material decrease. The loss in production, however, was very insignificant, and amounted to less than three hundred tons. The increase in tonnage in a number of mines, together with the additional output of new mines opened, nearly balanced the losses.

Two mines were abandoned and six shipping mines and five local mines were opened during the last two years.

The Illinois & Iowa Fuel Company closed its mine at Forbush last May, and a small mine near Exline, belonging to the White Oak Coal Company was abandoned last fall.

Of the new mines opened, mine No. 2, operated by the Scandinavian Coal Company, is located near Plano, on the Keokuk & Western railroad. It is substantially equipped, well arranged, has second opening, and is ventilated by a force fan fourteen feet in diameter.

The Exline Coal Co. experienced considerable difficulty in opening its No. 2 mine, located about three-fourths of a mile west of Exline, and about one-fourth mile east of mine No. 1. The shaft was sunk in a fault, and for a time it seemed that it would have to be abandoned, but good coal has been reached and the mine is now being developed. It is in good condition and the requirements of the law are fully complied with.

The Iowa Block Coal Co. opened a mine east of Exline, but the coal proved somewhat faulty and development work has been progressing but

slowly. An air and escape shaft has been sunk and connected with the workings and fan ventilation will be used.

The Prairie Block Coal Co. has opened a shaft mine on the Rock Island railroad, between Shawville and Numa, and has recently completed its air and escape shaft.

The Center Coal Co's. new shaft is located south of Centerville and connected with the Rock Island railroad. It is in good condition and provided with the safety devices the law requires. The sinking of the air and escape shaft is now progressing.

The Appanoose Coal and Fuel Co. opened a shaft mine near Diamond, on the Milwaukee railroad. It will have fan ventilation and mining machines, run by electricity will be used.

Of the five local mines recently opened, one is located in Centerville, two north of Exline, one north of Cincinnati and one east of Seymour.

In order to show what has been accomplished and the conditions prevailing at the close of this biennial period in the mines of Appanoose county, the following brief summary is given.

Appanoose Coal & Fuel Co. Mine No. 3. Has been somewhat improved during the last two years and, with care, can be kept in fairly satisfactory condition.

Walnut Block Coal Co. The mine is now worked on a small scale. Considerable improvements must be made before its output can be materially increased.

Phoenix Coal Co. Mechanical haulage has been substituted for mule haulage; the furnace has been enlarged and placed to better advantage. Mine in fair condition.

Centerville Block Coal Co. Mine No. 5. The ventilation, although improved and fairly sstisfactory at present, should be made more efficient by providing means to increase the air volume going through the mine. The mine is in fair physical condition.

Tipton Co-operative Coal Co. Mine worked on a small scale and will probably soon be exhausted.

Peacock Coal Co. Mine in fair condition.

Oriental Coal Co. Mine in fair condition.

Keystone Coal Co. Mine in fair condition.

Centerville Block Coal Co. Mine No. 3. The escape shaft has been retimbered. Air volume too small for the needs of the mine. Under existing conditions it has proved a difficult task to better the ventilation materially, but some progress has been made in that direction. It is the intention of the management to sink an air shaft as soon as the east workings have advanced far enough to admit of its location with advantage to the mine and its future development.

Anchor Coal Co. Mine No. 1. The hoisting shaft has been enlarged and retimbered. By enlarging the air shaft also ventilation has been improved, although the north workings are not yet in satisfactory condition in that respect. Otherwise the mine is well cared for.

Scandinavian Coal Co. Mine No. 1. An additional air and escape shaft, located near the head of the workings, was recently completed, improving the ventilation and adding to the safety of the mine.

Dewey Coal Co. Mine in fair condition.

Hocking Valley Coal Co. Mine No. 4. Ventilation slack. As soon as a shaft, already sunk, is reached and a suitable furnace built at the bottom of it, the ventilation can be kept in satisfactory condition.

Hocking Valley Coal Co. Mine No. 1. Fair sized air shaft has been sunk. The mine was idle for several months after the dump and other buildings burned down, February 4, 1905, and the workings have suffered in consequence. After the damage has been repaired, the mine can be maintained in fair condition.

The Albert mine, operated by the Mendota Coal & Mining Co., has been much improved in the last two years and is in satisfactory condition. Improvements were also noted in the Appanoose mine, belonging to the same company.

Thistle Coal Co. Mine No. 1. Air shaft completed and fan erected. Mine No. 2 Main air course thoroughly cleaned and mine otherwise improved. Mine No. 3. In fair condition.

Exline Coal Co. Mine No. 1. Fan ventilation has taken the place of ventilation by steam jet. Mine in good condition.

Centerville Block Coal Co. Mine No. 9. In good condition.

Centerville Block Cloal Co. Mine No. 2. This mine has been greatly improved and conditions are satisfactory.

Numa Block Coal Co. Mine No. 1. Ventilation has been deficient, but recently the fan has been removed from the quarter shaft, which is very small, to a shaft of larger dimensions, and better results in that respect can be expected.

Anchor Coal Co. Mine No. 3. The ventilation is improved; top works have been remodeled and the mine is in satisfactory condition.

Anchor Coal Co. Mine No. 2. In fair condition.

Centerville Block Coal Co. Mines Nos. 1 and 10. These mines are connected and are in good condition. The boiler power has been increased, the hoisting shaft of mine No. 1 has been retimbered and a new fan erected on the air shaft of mine No. 10, furnishing satisfactory ventilation for both mines.

Consumers Coal Co. The mine is in fair condition, but on account of a small sized air shaft, inadequate power to drive the fan and the poor construction of the fan itself, it has been difficult in the past to provide satisfactory ventilation for the mine. This summer the air shaft has been enlarged, the fan is now being remodeled and improved and a more powerful fan engine will be used. The results will be entirely satisfactory.

Big Jo Coal Co. Mine No. 1. Some difficulty was experienced in ventilating the southeast workings successfully, but since the west side of the mine has been adandoned, with the air courses in somewhat better shape, more satisfactory results may be expected.

F. H. Juckett Coal Co. Mine in fair condition.

Appanoose Coal & Fuel Co. Mine No. 21. When the present owners acquired this mine, it was in poor condition. It had been worked in a haphazard way and the lack of system made progress in its improvement difficult and slow. Much work remains yet to be done to put the mine in satisfactory condition.

Peerless Coal Co. Mine No. 4. In fair condition.

Peerless Coal Co. Mine No. 5. In fair condition.

Egypt Coal Co. The mine needs more adequate means to ventilate it properly.

Peerless Coal Co. Mine No. 1. In fair condition.

Artic Coal Co. Mine in fair condition.

Acken Coal Co. Mines No. 1 and 2 are now ventilated by a fan and, with proper attention, can be kept in satisfactory condition.

Peerless Coal Co. Mine No. 2. In good condition.

Mystic Coal Co. Mine in fair condition. An additional escape shaft has been sunk.

J. Helme Coal Co. Mine fairly satisfactory.

Diamond Block Coal Co. Mine No. 29. Somewhat improved and in fair condition.

Peerless Coal Co. Mine No. 6. Mechanical haulage installed. Ventilation fair in the west part of the mine, somewhat deficient in the east portion. At present the mine has furnace ventilation, but fan ventilation should be substituted as soon as the east workings can be connected with the Mystic Block mine. The latter is already connected with the above company's No. 3 mine, and a fan erected at the Mystic Block mine opening could provide efficient ventilation for both mines.

Peerless Coal Co. Mine No. 3. In fair condition.

Diamond Block Coal Co. Mine No. 12. Slope has been retimbered. The present manway is not in good condition, and it either should be put in more available condition or a new manway should be provided. Ventilation fair.

Orr Bros. Coal Co. Mine in fair condition.

Diamond Block Coal company, mine No. 5. Much improved in the last two years. In good condition.

Star Coal company. Mine well ventilated and in good condition.

Unity Block Coal company. Mine in fair condition.

Manufacturers Coal and Coke company. Mine No. 30. In fair condition.

The local mines were generally found to be in safe condition. In a few cases ventilation was deficient, but as the mines are of small extent it was not difficult to remedy this and provide a satisfactory volume of air for them.

It is not generally realized that the coal wealth of Appanoose county is far greater than that of any other county in Iowa. Making due allowance for all the coal mined in this county since its first mine was opened and considering only the vein now worked, the county's future available coal supply can be safely placed at 250,000,000 tons, a supply lasting at the present rate of production, for more than 250 years. There is no danger of any of the coal mining towns in the county being vacated in the near future on account of the coal in their vicinity giving out. Taking the town of Mystic, for instance, and supposing that the present yearly output of all the mines located along the Milwaukee railroad from Darbyville to Jerome had to be produced from now on in Mystic and its immediate vicinity alone it will be possible, under such conditions, for the Mystic miner to walk to his work fifty years hence, and the average distance traveled by him to reach his work need not exceed two miles from the center of the town.

Of the sixty-two mines in Appanoose county having shipping facilities, sixteen are worked on the room and pillar plan and forty-six on the longwall system. In fifteen mining machines are in use.

The mines are easily maintained in safe condition. The safe condition of the traveling roads used by the miners and others in going to and returning from their work, is shown by the fact that the 3,000 underground workmen in the county traveled through these passages during the last two years, every day the mines worked, without serious injury to one of them. What danger exists in these mines is generally encountered at the working face. There three fatal accidents occurred in the last two years, caused either by falls of black bat or coal.

Unfortunately, somewhat unfavorable market conditions prevent the steady operation of the mines, and any one conversant with coal mining knows that with slack work prevailing, it is always more or less difficult and expensive to keep the mines in order. Notwithstanding this drawback, the great majority of the Appanoose county mines have been maintained in fair condition during the last two years, and a considerable number of them have been materially improved.

MINES IN APPANOOSE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Scandinavian Coal company	2	Plano	K. & W.	Shaft.	Room and pillar.	Steam	Fan.
Appanoose Coal and Fuel company	3	West of Brazil	K. & W.	Slope.	Long wall	Electric'y	Furnace.
Walnut Block Coal company	....	Brazil	K. & W.	Drift.	Long wall	Horse	Furnace.
Phœnix Coal company	....	Brazil	K. & W.	Drift.	Long wall	Steam	Furnace.
Centerville Block Coal company	5	Brazil	K. & W.	Slope	Long wall	Steam	Furnace.
Tipton Co-Operative Coal company	....	Brazil	K. & W.	Drift	Long wall	Horse	Furnace.
Peacock Coal company	....	Brazil	K. & W.	Drift.	Long wall	Horse	Furnace.
Oriental Coal company	1	South of Brazil	K. & W.	Slope.	Long wall	Steam	Furnace.
Oriental Coal company	2	South of Brazil	K. & W.	Slope.	Long wall	Steam	Furnace.
Keystone Coal company	....	1 mile southeast of Brazil	K. & W.	Shaft.	Long wall	Steam	Fan.
Centerville Block Coal company	3	West of Centerville	K. & W. and Iowa Cent'l	Shaft.	Room and pillar.	Steam	Fan.
Anchor Coal company	1	Centerville	K. & W.	Shaft.	Long wall	Steam	Fan.
Scandinavian Coal company	1	Centerville	K. & W.	Shaft	Room and pillar.	Steam	Fan.
Dewey Coal company	....	1½ miles southeast of Centerville	K. & W.	Shaft	Room and pillar.	Steam	Fan.
Hocking Valley Coal company	4	2 miles southwest of Cincinnati	C. B. & K. C.	Slope.	Long wall	Horse	Furnace.
Hocking Valley Coal company	1	1½ miles southwest of Cincinnati	C. B. & K. C.	Slope.	Long wall	Horse	Furnace.
Mendota Coal and Mining company	2	West of Cincinnati	C. B. & K. C.	Shaft.	Long wall	Steam	Fan.
Mendota Coal and Mining company	1	Cincinnati	C. B. & K. C.	Shaft.	Long wall	Steam	Fan.
Thistle Coal company	3	Southeast of Cincinnati	C. B. & K. C.	Shaft.	Long wall	Steam	Fan.
Thistle Coal company	1	1 mile east of Cincinnati	C. B. & K. C.	Shaft.	Long wall	Steam	Fan.
Thistle Coal company	2	1½ mile east of Cincinnati	C. B. & K. C.	Shaft.	Room and pillar.	Steam	Fan.
Exline Coal company	1	West of Exline	C. B. & K. C.	Shaft.	Room and pillar.	Steam	Fan.
Exline Coal company	2	West of Exline	C. B. & K. C.	Shaft	Room and pillar.	Steam	Jet.
Iowa Block Coal company		Exline	C. B. & K. C.	Shaft.	Room and pillar.	Steam	Jet.
Royal Coal company	....	Northeast of Exline	C. B. & K. C.	Slope.	Long wall	Steam	Furnace.
Centerville Block Coal company	9	West of Centerville	Iowa Central.	Shaft.	Room and pillar.	Steam	Fan.
Illinois and Iowa Fuel company	....	Forbush	Iowa Central.	Shaft.	Long wall	Steam	Fan.
Centerville Block Coal company	2	Numa	C., R. I. & P.	Shaft.	Long wall	Steam	Fan.
Numa Block Coal company	1	Numa	C., R. I. & P.	Shaft.	Long wall	Steam	Fan.
Prairie Block Coal company	....	4 miles south of Centerville	C., R. I. & P.	Shaft.	Long wall	Steam	Jet.
Anchor Coal company	3	3 miles south of Centerville	C., R. I. & P.	Shaft.	Long wall	Steam	Fan.
Anchor Coal company	2	2 miles south of Centerville	C., R. I. & P.	Shaft.	Room and pillar.	Steam	Fan.
Center Coal company	....	South of Centerville	C., R. I. & P.	Shaft.	Room and pillar.	Steam	Jet.
Centerville Block Coal company	1	East of Centerville	C. R. I. & P.	Shaft.	Room and pillar.	Steam	Fan.
Centerville Block Coal company	10	East of Centerville	C. R. I. & P.	Shaft	Room and pillar.	Steam	Fan.
Consumers Coal company		Jerome	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Big Jo Coal company	....	1¾ mile east of Jerome	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.

F. H. Juckett Coal company	....	3 miles southwest of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Appanoose Coal and Fuel company	21	Diamond	C. M. & St. P.	Slope.	Long wall	Steam	Furnace.
Appanoose Coal and Fuel company	22	Diamond	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Peerless Coal company	4	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Horse	Furnace.
Peerless Coal company	5	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Furnace.
Egypt Coal company	....	West of Mystic	C. M. & St. P.	Slope.	Long wall	Steam	Furnace.
Peerless Coal company	1	Mystic	C. M. & St. P.	Drift.	Long wall	Horse	Furnace.
Artic Coal company	....	Mystic	C. M. & St. P.	Drift.	Long wall	Horse	Furnace.
Acken Coal company	1	West of Mystic	C. M. & St. P.	Slope.	Long wall	Steam	Fan.
Acken Coal company	2	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Horse	Fan.
Peerless Coal company	3	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Jet.
Mystic Coal company	....	West of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
J. Helme Coal company	....	West of Mystic	C. M. & St. P.	Slope.	Long wall	Horse	Furnace.
Diamond Block Coal company	29	Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Cedar Rapids Fuel company	....	Mystic	C. M. & St. P	Drift.	Long wall	Horse	Furnace.
Peerless Coal company	6	Mystic	C. M. & St. P.	Drift.	Long wall	Steam	Furnace.
Peerless Coal company	8	Mystic	C. M. & St. P.	Drift.	Long wall	Horse	Furnace.
Diamond Block Coal company	12	Mystic	C. M. & St. P.	Slope.	Long wall	Horse	Furnace.
Beggs Coal company	....	1¼ mile east of Mystic	C. M. & St. P.	Shaft.	Long wall	Horse	Furnace.
Orr Bros. Coal company	....	1½ mile east of Mystic	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Diamond Block Coal company	5	Clarkdale	C. M. & St. P.	Shaft.	Long wall	Steam	Fan.
Star Coal company	....	Rathbun	C., M. & St. P.	Shaft.	Long wall	Steam	Fan.
Stone Coal company	....	East of Rathbun	C., M. & St. P.	Shaft.	Long wall	Horse	Furnace.
Unity Block Coal company	....	Darbyville	C., M. & St. P.	Slope	Long wall	Steam	Furnace.
Manufacturers Coal & Coke company	30	South of Centerville	K. & W. and C., R. I. & P.	Shaft.	Room and pillar.	Steam	Fan.
H. H. Parker	....	Livingston		Shaft.	Room and pillar.	Horse	Furnace.
Superior Coal company	...	South of Jerome		Shaft.	Long wall	Horse	Furnace.
Domestic Coal company	....	Cincinnati		Shaft.	Room and pillar.	Horse	Furnace.
White Oak Coal company	....	North of Exline		Shaft.	Room and pillar.	Horse	Furnace.
Red Oak Coal company	....	North of Exline		Shaft.	Room and pillar.	Horse	Furnace.
C. W. Tannell	....	East of Exline		Slope.	Room and pillar.	Horse	Furnace.
J. R. Pettigrew	....	East of Seymour		Shaft.	Long wall	Horse	Furnace.
Ira A. Guinn		Coal City		Drift.	Room and pillar.	Horse	Furnace.
Walnut Grove Coal company	...	North of Numa		Shaft.	Long wall	Horse	Furnace.
J. R. Wright	....	South of Centerville		Shaft.	Room and pillar.	Horse	Furnace.
J. Sears	....	South of Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Wm. Smith	....	South of Centerville		Slope.	Room and pillar.	Horse	Furnace.
J. W. Shirey	....	Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Happy Coal company	....	Centerville		Shaft.	Room and pillar.	Horse	Furnace.
White Oak Coal company	....	Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Monitor Coal company	....	Centerville		Shaft.	Room and pillar.	Horse	Furnace.

APPANOOSE COUNTY—CONTINUED.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Star Coal company	....	Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Trio Coal company	....	North of Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Rock Valley Coal company	..	Northeast of Centerville		Shaft	Room and pillar.	Horse	Furnace.
John Schrumm	....	North of Centerville		Shaft	Room and pillar.	Horse	Furnace.
John Koontz	....	North of Centerville		Shaft.	Room and pillar.	Horse	Furnace.
Elgin & Barrett	....	East of Mystic		Slope.	Long wall	Horse	Furnace.
Bittinger & Company	....	Mystic		Slope	Long wall	Horse	Furnace.
W. Milburn	....	Mystic		Slope.	Long wall	Horse	Furnace.

MONROE COUNTY (Part).

Two years ago, by the Governor's order, the part of Monroe county bounded on the west by the Wabash railway and on the south by the main line of the C., B. & Q., was taken out of the first inspection district and added to the second. In the part of Monroe county, left in this district, thirteen mines are operated. Eleven of these have direct railroad connections and two have not. The latter, however, ship a considerable portion of their output by rail. The coal carrying railroads are the C., B. & Q., the Iowa Central and the C., M. & St. P. The Wabash railway has so far no mines in this county contributary to it.

The working time of the mines on the whole was considerably less last year than in the preceding year, only three mines showing gains in this respect. The mine of the Excelsior Coal Co. made a gain of eighteen days last year over the preceding year, mine No. 6 of the Phillips Fuel Co. gained seventy-eight days and mine No. 10, operated by the Whitebreast Fuel Co., of Illinois, gained sixteen days. These three mines employed last February 352 miners as against 281 in February, 1904, and the increase in their coal output last year over the year ending June 30, 1904, amounted to 37,091 tons. On the other hand, there was a marked loss in working time last year in the remaining important mines in the county. Mine No. 3 of the Wapello Coal Co. lost fifty-seven days; mine No. 4 of the same company, sixty-four days; No. 4 mine of the Smoky Hollow Coal Co., 24 days; No. 6 mine of the same company, thirty-seven days; mine No. 1 of the Hocking Coal Co., forty days; and mine No. 2 of the same company, thirty-nine days. Considering this serious drawback, these mines show but a comparatively small reduction in their coal output last year. In the year ending June 30, 1904, these mines produced 889,890 tons of coal, with 1,017 miners employed in February, 1904; last year they produced 850,333 tons of coal with 1,148 miners working last February. The gain in production made by the mines on the Milwaukee railroad, together with the gain coming from mine No. 3 of the Hocking Coal Co. more than balanced the losses shown, and the net increase in last year's coal production of the part of Monroe county assigned to this district over the preceding year amounted to 10,809 tons.

Six corporations control the above eleven railroad mines. The Smoky Hollow Coal Co. operates mines 4, 6 and 7, located southeast of Avery. Mine No. 7, although opened for more than two years, has been worked but little, but as No. 4 mine will soon be exhausted, preparations are now being made to develop the new mine. It has a fine slope opening, is ventilated by a fan, sixteen feet in diameter, and its general condition is good. Mine No. 6 belonging to the above company, is one of the largest mines in the State, employing an underground force of about 400 men and boys. To keep a

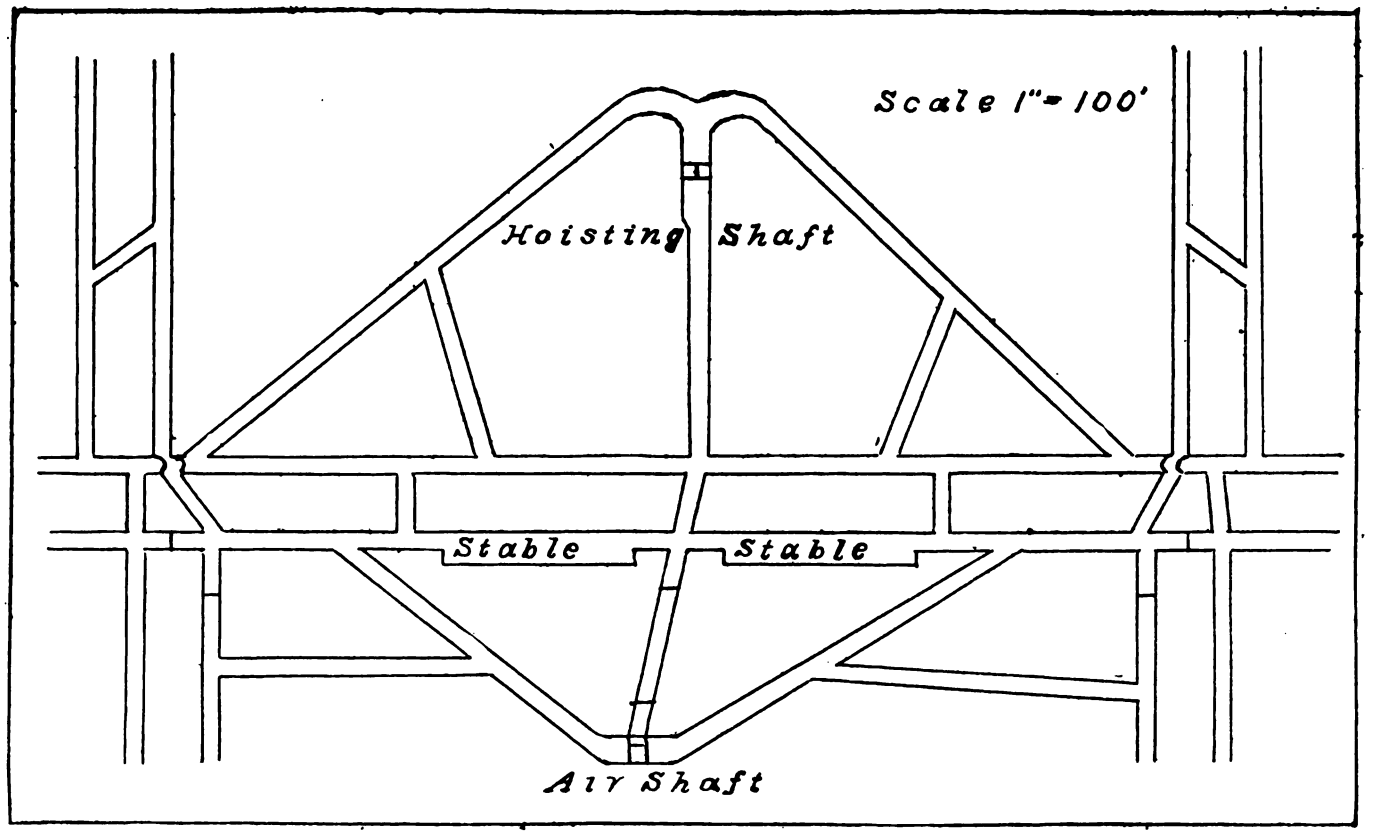
mine of this size always in good condition, in all its parts, is a serious problem but it has been fairly satisfactorily solved by the management in the past, and there is reasonable assurance that the future needs of the mine will be well cared for. The ventilation was nearly always found in satisfactory condition and due consideration was given to provide reasonable safety for the men employed in the mine. A separate traveling road, of fair dimensions and in good condition, parallels the main haulage road.

The Wapello Coal company operates mines 3 and 4, located respectively west and northwest of Hiteman. No. 4 mine is in good condition, well cared for and fairly well ventilated. The system adopted in this mine, and used for the first time on an extensive scale in Iowa, of leaving the main cross entries solid and driving cross entries, from which the rooms are turned, connecting them, has given entire satisfaction. The adoption of this system has resulted in materially reducing the danger from squeezes. It has permitted the installation of an economical and efficient haulage system and it has proved of especial benefit to the ventilation of the mine. In mine No. 3 considerable work has been done to develop the south side of the mine and increase its output and at the same time efforts have been made to better its sanitary condition. The south air course is being enlarged, stoppings have been rebuilt and coated with cement, the mine stables have been moved to safer and better locations and other work has been done to improve the mine and benefit the men working in it. In both mines separate traveling roads, paralleling the haulage roads, have been provided and they are maintained in good condition.

The need of thorough and careful prospecting of supposed coal territory, before commencing its actual development, is again shown by the mistake made in opening the mine of the Excelsior Coal Co. in its present location. The mine has not proved a success, its total coal production has been small and in all probability it will soon be abandoned.

Mine No. 6 of the Phillips Fuel Co. has been made safer and its ventilation has been improved by the sinking of an additional air shaft. It was in this mine two shotfirers lost their lives on January 20, 1904. Another fatal accident occurred in it on March 23, 1905, when Thos. Davis, a miner, was killed by a fall of slate in his room. Considerable improvement will have to be made in the ventilating apparatus and airways to keep the ventilation of the mine in satisfactory condition.

Mine No. 10, operated by the Whitebreast Fuel Co., of Illinois, is well arranged for the rapid and economical handling of a large output of coal. The tower is steel, the hoisting is done by a pair of first motion engines and labor saving devices are used to advantage. The mine is ventilated by a force fan, fourteen feet in diameter, set in a steel casing. While its engine is of ample power, the fan itself shows weakness in construction, and, although partially successful efforts have been made to strengthen it, it can only be run safely at a rather low speed, and consequently its efficiency is kept at a correspondingly low point. In parts of the mine the roof is rather tender, but notwithstanding this, no fatal accidents occurred in it during the last two years. The mine has been in operation more than four years with an average force of 175 miners employed, and in all that time not a miner lost his life while at work in his place.


Scale 1" = 100'
Hoisting Shaft
Stable
Stable
Air Shaft

The Hocking Coal Co. operates three mines, located a few miles south of Albia. Mine No. 1 will soon be abandoned. When the present Hocking Coal Co. bought this mine it was in bad condition and all efforts to improve it since have been but indifferently successful. I believe little regret will be felt over the closing of this mine. Mine No. 2 has been greatly improved during the last year and a half, and considering its extent and the number of men employed (350) is in very fair condition. The management intends to install mechanical haulage and when that is done the mine's future coal output should show a material increase. Mine No. 3 was opened this year and promises to become one of the largest coal producers in the State. The coal is of fair thickness and of good quality. A steel tower will be erected, self-dumping cages will be used, a first motion hoisting engine is already in place and the usual labor saving devices will be provided. The mine is ventilated by a force fan, fourteen feet in diameter, which is capable of delivering nearly 1,000 cubic feet of air per revolution. The shaft bottom (see sketch) has been well arranged to facilitate the rapid handling of coal and the underground arrangements for the future successful ventilation of the mine are good.

It is not probable that any new mines will be opened this year in the part of Monroe county belonging to this district, and as the mines in operation are in condition to greatly increase their output to meet any immediate future demand, there appears to be little need to add, for the present at least, to the number of mines now working.

MINES IN MONROE COUNTY (PART), THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Wapello Coal company	3	1 mile west of Hiteman	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Wapello Coal company	4	3 miles northwest of Hiteman	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Smoky Hollow Coal company	4	Hynes	C., B. & Q.	Slope.	Room and pillar.	Steam	Fan.
Smoky Hollow Coal company	6	4 miles southeast of Hynes	C., B & Q.	Slope.	Room and pillar.	Steam	Fan.
Smoky Hollow Coal company	7	4 miles southeast of Hynes	C., B. & Q.	Slope.	Room and pillar.	Steam	Fan.
Excelsior Coal company	....	1½ miles west of Foster.	C., M. & St. P.	Shaft.	Room and pillar.	Steam	Fan.
Phillips Fuel company	6	West of Foster.	C., M. & St. P.	Shaft.	Room and pillar.	Steam	Fan.
Whitebreast Fuel company.	10	Hilton	C., M. & St P.	Shaft.	Room and pillar.	Steam	Fan.
Hocking Coal company	1	Hocking	Iowa Central	Shaft.	Room and pillar.	Steam	Fan.
Hocking Coal company	2	Southeast of Hocking	Iowa Central.	Shaft.	Room and pillar.	Steam	Fan.
Hocking Coal company	3	2½ miles south of Albia	Iowa Central.	Shaft	Room and pillar.	Steam	Fan.
Star Coal company	....	Northwest of Albia		Shaft.	Room and pillar.	Steam	Fan.
White Ash Coal company.		South of Avery		Slope.	Room and pillar	Steam	Fan.

LUCAS COUNTY.

The coal production of Lucas county for the year ending June 30, 1903 amounted to 269,539 tons, for the year ending June 30, 1904, it was 239,384 tons, during last year 165,256 tons were produced and conditions, as they exist at present, seem to warrant the prediction that, in all probability, the year just entered upon will show no increase and may even show a further decline in the coal output. This is undoubtedly an unfavorable showing, but it should not be taken as an indication that the coal mining industry of the county is in a bad way and that another collapse of the mining business, like that which occurred fourteen years ago, need be feared. The outlook for the future growth of the county's coal industry was never better than at this time, and it is certain that this temporary present decline will be amply compensated for in the near future.

The shrinkage in tonnage last year was largely due to the slack work prevailing and the closing down of the Big Hill mine last April.

The principal mine in the county is located at Cleveland and is operated by the Whitebreast Fuel company of Illinois. The mine is provided with good machinery of ample power to take care of a large coal output, has a steel tipple and its safety devices and other equipments are in good order. The shaft is 321 feet deep. Motor haulage is used with satisfactory results. The mine is ventilated by a force fan twenty feet in diameter, set in a steel casing. The fan furnishes a fair air volume, but as the mine is large great care is necessary to keep the ventilation of all its parts in satisfactory condition. The difficulty is made greater by the existence of an extensive fault, running in a southwesterly direction and dividing the mine in two parts. The north side is now fairly well ventilated and the south will be improved in this respect. Work is now going on to clean and enlarge the south air course with the view of not only benefiting the ventilation but to also provide an available and safe traveling way, apart from the main haulage road, for the men working in the south part of the mine.

As stated above the Big Hill mine at Lucas was closed down last April. The cars, rails, pumps, etc., were removed from the mine, and it appeared that its abandonment was complete. Recently, however, arrangements were made to reopen the mine, and the indications are that it will be in operation again soon.

The Inland Fuel Company's mine, located north of Chariton, is in good condition.

In the above three mines the lower seam of coal is worked. Its average thickness is about five feet. The veins worked in the few small local mines in the county belong to the upper coal measures and their thickness seldom exceeds two feet.

The number of fatal accidents was less during the last two years than during the preceding two years. In the biennial period ending June 30, 1903, five fatal accidents occurred in the mines of the county, while but two occurred in the biennial period just closed.

MINES IN LUCAS COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Whitebreast Fuel company	4	Cleveland	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Big Hill Fuel company	....	Lucas	C., B. & Q.	Shaft.	Room and pillar.	Steam	Fan.
Inland Fuel company	....	8½ miles northeast of Chariton		Shaft.	Room and pillar.	Steam	Fan.
Skidmore Bros	....	Northeast of Lucas		Shaft.	Long wall	Horse	Furnace.

WAYNE COUNTY.

The coal output of Wayne county is at present produced by ten mines two of them having shipping facilities and eight doing a local business. The two shipping mines are located at Seymour, five of the local mines are located south of Confidence, two about five miles west and southwest of Seymour and one near Harvard. The Big Jim mine, connected with the C., M. & St. P. Railroad and operated by the Numa Block Coal Co. produced more coal during the last two years than any other mine in the Appanoose-Wayne field. At this mine the coal was reached at a depth of 202 feet. The hoisting is done by first motion engines and self-dumping cages and a box car loader facilitates the handling of the mine's output. A fan sixteen feet in diameter ventilates the workings satisfactorily. The Sunshine mine, connected with the Rock Island Railroad, was purchased about three years ago from the Seymour Coal Co. by the Numa Block Coal Co. At the time the purchase was made and for some time afterwards the mine was in bad condition, but the shafts have since been enlarged and timbered throughout, new cages have been provided, the underground workings have been improved and the mine's coal output has been materially increased. The ventilation of the mine is better than formerly and there is reasonable assurance that further improvement in that direction will be made.

Of the local mines the Frye mine south of Confidence and the Walker mine, five miles southwest of Seymour, are the best equipped. At both mines steam power is used, the mine buildings are of a substantial character and the safety devices, required by law, are in good condition.

The mines in the country are worked long-wall and the mine workings are fairly safe. While there were two fatal accidents during the last two years, none occurred at the face. John McCue was killed in mine No. 3 of the Numa Block Coal company on February 20, 1904, while crossing the shaft, and Ed Green lost his life on January 6, 1905, in the tipple of the Big Jim mine by being crushed between the slack car and a heavy timber.

The yearly coal output of the county was greater last year than ever before and for the first time exceeded 100,000 tons.

MINES IN WAYNE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Numa Block Coal company	2	1 mile east of Seymour	C., M. & St. P.	Shaft.	Long wall	Steam	Fan.
Numa Block Coal company	3	Seymour	C., R. I. & P.	Shaft.	Long wall	Steam	Fan.
J. L. Slack	....	North of Sewal		Shaft.	Long wall	Horse	Furnace.
E. McCracken	...	5 miles west of Seymour		Shaft.	Long wall	Steam	Furnace.
Sam Walker	..	4 miles southwest of Seymour		Shaft.	Long wall	Steam	Furnace.
E. A. Sipes		4 miles south of Confidence		Shaft.	Long wall	Steam	Furnace.
A. H. Hayhurst	....	3½ miles south of Confidence		Shaft.	Long wall	Horse	Furnace.
John Hayhurst	....	South of Confidence		Shaft	Long wall	Horse	Furnace.
L. Frye		South of Confidence		Shaft.	Long wall	Steam	Fan.

TAYLOR COUNTY.

The principal mines in Taylor county are located near New Market and three of these have switches off the Burlington road. In the northwestern part of the county three or four small mines are operated during the fall and winter, but their coal output is limited. The coal vein is about sixteen inches thick, is reached by shafts and worked long-wall. The underground conditions are conducive to safe mining and accidents in the mines are rare, none of a serious nature having occurred in the last two years. Hoisting is done by horse power entirely and the apparatus used is now in fairly satisfactory condition. Ventilation is produced by small furnaces and not difficult to maintain.

The returns show that the coal output of the county has not been as great last year and the year before as in former years. Various causes have contributed to this end, but the principal one, I believe, was the opening of the mines near Clarinda.

MINES IN TAYLOR COUNTY, THEIR LOCATION, ETC.

Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Tomlinson & Pace	....	East of New Market	C., B. & Q.	Shaft.	Long wall	Horse.	Furnace.
Campbell Coal Co	1	East of New Market	C., B. & Q.	Shaft.	Long wall	Horse.	Furnace.
Campbell Coal Co	2	East of New Market		Shaft.	Long wall	Horse.	Furnace.
Wm. Browning	....	East of New Market	C., B. & Q.	Shaft.	Long wall	Horse.	Furnace.
N. Easter	....	2 miles east of New Market		Shaft.	Long wall	Horse.	Furnace.
H. Ankeny		6 miles north of New Market		Shaft	Long wall	Horse.	
I. Ankeny	....	6 miles north of New Market		Shaft.	Long wall	Horse.	
F. Heller	....	6 miles north of New Market		Shaft.	Long wall	Horse.	
W. E. Rogers	...	Henshaw		Shaft	Long wall	Horse.	

PAGE COUNTY.

The four mines in this county, located west and southwest of Clarinda and within a few miles of that town, produced during the last two years a little more than thirty-four thousand tons of coal. They have no railroad facilities and have done no shipping of coal by rail, but they have a good home market, and in the winter time the demand often exceeds the supply.

The vein worked averages less than eighteen inches in thickness and is of fair quality. Shafts of considerable depth are necessary to reach the coal, and this, together with the thinness of the coal, makes mining rather expensive.

The epuipment of the mines compares favorably with the equipments of mines of like character elsewhere. The safety devices in use conform to the requirements of the law. Second openings have been made at all the mines and they are kept in available condition. The hoisting apparatus is kept in fair order. Ventilation is produced by small furnaces and is nearly always satisfactory.

Favorable natural conditions tend to make the work of the miner comparatively safe, yet two fatal accidents occurred in this county about a year and a half ago. One in a small mine located about five miles south of Clarinda, the other in the Johnston mine west of the county seat. No serious accident has occurred in any of the mines in Page county in the last year and a half.

MINES IN PAGE COUNTY, THEIR LOCATION, ETC

Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of open-opening.	System of Working.	Means of ventilation	Power used.
Johnston & Co.	..	2 miles west of Clarinda	....	Shaft	Long wall	Horse	Furnace.
Van Aradol & Woods	....	West of Clarinda	....	Shaft	Long wall	Horse	Furnace.
J. W. Berry Coal company.	1	2 miles southwest of Clarinda	....	Shaft	Long wall	Horse	Furnace.
J. S. Moore	...	2½ miles southwest of Clarinda	....	Shaft	Long wall	Horse	Furnace.

ADAMS COUNTY.

On account of the smallness of the coal seam and the fact that no mines have been developed near the railroad, no coal is shipped from the county by rail, and as there are but few factories and no large coal consuming concerns in the county, the market is limited to the demands for home use and consequently the yearly coal production has never been large. In the aggregate, however, since the time mining first commenced in the county, until now, Adams county has made a fair record. While absolutely correct data are not available, I believe it can be safely assumed that its coal production during the last thirty years has amounted to about 300,000 tons.

The coal seam averages about sixteen inches in thickness, fairly free from impurities. It is reached by shallow shafts and worked long-wall. While the equipment of the mines is generally of a rather crude character, the safety of the miners is not neglected. Mining so far has been carried on only in the western half of the county, along the Nodaway river and its branches and the principal mining centers are near Carbon, Eureka, Briscoe and Hoyt.

No extensive systematic efforts have been made to discover the existence of available seams of coal below the one now worked and it is problematical if any can be found. At Carbon a hole was put down to the depth of more than 400 feet. The work was done with a core drill. The strata drilled through consisted principally of lime shale, limestone and sandstone, and no other indications whatever of coal were found.

As most of the work in the mines of this county is done during the colder months of the year, and as the mine workings are never extensive and the number of men working in each mine small, little difficulty is experienced in keeping the mine ventilation in satisfactory condition.

Owing to favorable natural conditions and the method of working the coal, accidents to miners of a serious nature are very rare, and none has occurred during the last two years.

MINES IN ADAMS COUNTY, THEIR LOCATION, ETC.

Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Chas. Crist		Eureka		Shaft.	Long wall	Horse	Furnace.
Jas. Hartshorn		Eureka		Shaft.	Long wall	Horse	
J. M. Henton		Eureka		Shaft.	Long wall	Horse	Furnace.
Ed. Amdor		North of Carbon		Shaft.	Long wall	Horse	Furnace.
M. Jones		Carbon		Shaft.	Long wall	Horse	Furnace.
J. F. Rush		Carbon		Shaft.	Long wall	Horse	Furnace.
J. F. Wild	2	Carbon		Shaft.	Long wall	Horse	Furnace.
Collins & Barker		Carbon		Shaft.	Long wall	Horse	Furnace.
H. Houck		Carbon		Shaft.	Long wall	Horse	Furnace.
Herm. Day		West of Carbon		Shaft.	Long wall	Horse	Furnace.
Jas. Gammell		West of Carbon		Shaft.	Long wall	Horse	Furnace.
Eclipse Coal company		Brisco		Shaft.	Long wall	Horse	Furnace.
C. L. Harlan		Brisco		Shaft.	Long wall	Horse	Furnace.
Mason & Dougherty.		Northwest of Nodaway		Shaft.	Long wall	Horse	Furnace.

List of corporations, firms and individuals operating mines in the first district, their postoffice address, number of mines operated by them in the district and shipping facilities, if any.

Corporation, Firm or Individual.	Address.	No. of mine.	Shipping Facilities.
Scandinavian Coal company	Centerville	2	Keokuk & Western.
Appanoose Coal and Fuel company	Diamond	3	Keokuk & Western and Chicago, Milwaukee & St. Paul
Walnut Block Coal company	Centerville	1	Keokuk & Western.
Phœnix Coal company	Brazil	1	Keokuk & Western.
Centerville Block Coal company	Centerville	6	Keokuk & Western, Chicago, Rock Island & Pacific and Iowa Central
Tipton Co-operative Coal Co	Brazil	1	Keokuk & Western.
Peacock Coal company	Brazil	1	Keokuk & Western.
Oriental Coal company	Centerville	2	Keokuk & Western.
Keystone Coal company	Centerville	1	Keokuk & Western.
Anchor Coal company	Centerville	3	Keokuk & Western and Chicago, Rock Island & Pacific.
Dewey Coal company	Centerville		Keokuk & Western.
Hocking Valley Coal company	Cincinnati	2	Chicago, Burlington & Kansas City.
Mendota Coal and Mining company	Cincinnati		Chicago, Burlington & Kansas City.
Thistle Coal company	Cincinnati		Chicago, Burlington & Kansas City.
Exline Coal company	Exline		Chicago, Burlington & Kansas City.
Iowa Block Coal company	Centerville	1	Chicago, Burlington & Kansas City.
Illinois and Iowa Fuel company	Ottumwa	1	Iowa Central.
Numa Block Coal company	Seymour	3	Chicago, Rock Island & Pacific and Chicago, Milwaukee & St. Paul.
Prairie Block Coal company	Centerville	1	Chicago, Rock Island & Pacific.
Center Coal company	Centerville		Chicago, Rock Island & Pacific.
Consumers Coal company	Cedar Rapids	1	Chicago, Milwaukee & St. Paul.
Big Jo Coal company	Harkes	1	Chicago, Milwaukee & St. Paul.
F. H. Juckett Coal company	Cedar Rapids	1	Chicago, Milwaukee & St Paul.
Peerless Coal company	Centerville	6	Chicago, Milwaukee & St Paul.
Egypt Coal company	Mystic		Chicago, Milwaukee & St. Paul.
Artic Coal company	Mystic	1	Chicago, Milwaukee & St. Paul.
Acken Coal company	Mystic	2	Chicago, Milwaukee & St. Paul.
Mystic Coal company	Mystic		Chicago, Milwaukee & St. Paul.
J. Helme Coal company	Mystic	1	Chicago, Milwaukee & St. Paul.
Diamond Block Coal company	Mystic	3	Chicago, Milwaukee & St Paul.
Cedar Rapids Fuel Co	Cedar Rapids	1	Chicago, Milwaukee & St. Paul.
Beggs Coal company	Mystic	1	Chicago, Milwaukee & St. Paul.
Orr Bros. Coal company	Mystic	1	Chicago, Milwaukee & St. Paul.
Star Coal company	Rathbun	1	Chicago, Milwaukee & St. Paul.
Unity Block Coal company	Darbyville	1	Chicago, Milwaukee & St. Paul.
Manufacturers Coal & Coke company	Centerville	1	Keokuk & Western and Chicago Rock Island & Pacific.
Domestic Coal company	Cincinnati	1	
White Oak Coal company	Exline	1	
Red Oak Coal company	Exline	1	
C. W. Tunnell	Exline	1	
J. R. Pettigrew	Seymour	1	
Ira A. Guinn	Coal City	1	
Walnut Grove Coal company	Numa	1	Chicago, Rock Island & Pacific.
J. R. Wright	Centerville	1	
J. Sears	Centerville	1	
Wm. Smith	Centerville	1	
J. W. Shirey	Centerville	1	

LIST OF CORPORATIONS, ETC.—CONTINUED.

Corporation, Firm or Individual.	Address.	No. of Mines.	Shipping Facilities.
Happy Coal company	Centerville	1	
White Oak Coal company	Centerville	1	
Monitor Coal company	Centerville	1	
Star Coal company	Centerville	1	
Trio Coal company	Centerville	1	
Rock Valley Coal company	Centerville	1	
John Schrum	Centerville	1	
John Koontz	Centerville	1	
Elgin & Barrett	Mystic	1	
E. Bittinger & Co.	Mystic	1	
Wm. Milburn	Mystic	1	
Wapello Coal company	Hiteman	2	Chicago, Burlington & Quincy.
Smoky Hollow Coal company	Avery	3	Chicago, Burlington & Quincy.
Star Coal company	Albia	1	Chicago, Burlington & Quincy.
White Ash Coal company	Avery	1	Chicago, Burlington & Quincy.
Excelsior Coal company	Foster	1	Chicago, Milwaukee & St. Paul.
Phillips Fuel company	Ottumwa	1	Chicago, Milwaukee & St. Paul.
Hocking Coal company	Hocking	3	Iowa Central.
Whitebreast Fuel Co. of Illinois	Ottumwa	2	Chicago, Milwaukee & St. Paul and Chicago, Burlington & Quincy.
Inland Fuel company	Chariton	1	
J. L. Slack	Sewal	1	
Sam Walker	Seymour	1	
E. A. Sipes	Promise City	1	
A. H. Hayhurst	Promise City	1	
L. Frye	Promise City	1	
John Hayhurst	Promise City	1	
Tomlinson & Pace	Newmarket	1	Chicago, Burlington & Quincy.
Campbell Coal company	Newmarket	2	Chicago, Burlington & Quincy.
Wm. Browning	Newmarket	1	Chicago, Burlington & Quincy.
N. Easter	Newmarket	1	
H. Ankeny	Newmarket	1	
I. Ankeny	Newmarket	1	
F. Heller	Newmarket	1	
W. E. Rogers	Villisca	1	
Johnston & Company	Clarinda	1	
Van Arsdol & Woo'n	Clarinda	1	
J. W. Berry Coal company	Clarinda	1	
J. S. Moore	Clarinda	1	
Chas. Christ	Corning	1	
J. M. Henton	Corning	1	
Ed. Amdor	Carbon	1	
M. Jones	Carbon	1	
J. F. Ruth	Carbon	1	
J. F. Wild	Carbon	1	
Collins & Barker	Carbon	1	
H. Houck	Carbon	1	
H. Day	Nodaway	1	
Jas. Gammell	Nodaway	1	
Masan & Daugherty	Nodaway	1	
Eclipse Coal company	Briscoe	1	
C. L. Harlan	Cumberland	1	

This needed

SECOND DISTRICT.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit herewith, my first report as Mine Inspector of the Second District covering the biennial period ending June 30, 1905.

Very respectfully,

JAMES A. CAMPBELL,

Inspector Second District.

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REPORT OF SECOND DISTRICT.

During the thirteen months of my service in the Second District, I have visited 173 mines, and, with but few exceptions, I found the safety and sanitary conditions of the mines to be reasonably satisfactory, and in mines where it was necessary to make changes to better the condition of the mine I found the owner ready and willing to comply with the orders of the inspector, and to use all efforts to comply with the mining laws.

There has been a large amount of prospecting and development work done in this district the last year, and it is evident from the number of new mines under construction, and more to follow, that there will be a natural increase in the coal tonnage from this district in the future.

There have been a number of mines abandoned in the past two years, however the number of new mines opened will more than offset the ones abandoned, particularly so in tonnage, as several of the mines that have gone out of business depended entirely upon the local trade, and the majority of the new mines that are under construction will do a shipping business and have a large tonnage.

It gives the inspector pleasure to note the care that is constantly exercised by the miners and mine owners to prevent accidents in the mines.

There have been fifty-five scales inspected and tested and out of the above number twenty-seven were found to be weighing incorrectly and were condemned. In all cases the mine owner showed a disposition to adjust the scales and put them into a position to weigh correctly.

FATAL ACCIDENTS IN SECOND DISTRICT FOR THE TWO YEARS ENDING JUNE 30, 1905.

CARL J. PETERSON.

A miner employed at mine No. 10 of the Consolidation Coal Company, Monroe county, was fatally injured on August 15, 1903, by a fall of slate. One wrist and one leg was broken and he received internal injuries from which he died two hours later.

CHARLES WINCHELL.

A driver in the employ of the Black Diamond Coal Company was instantly killed on September 30, 1903. He was blasting coal when slate fell crushing him and killing him instantly.

DAVID HOPKINS.

A shotfirer in the employ of the Consolidation Coal Company of Monroe county, was killed on December 22, 1903, while performing his duties as shotfirer. He had lighted shot when shot came through pillar tearing him all to pieces.

EMMET GRIGGS.

Top hand and chunker for the What Cheer Fuel Company at mine No. 1, Keokuk county, was killed on December 28, 1903, while working for the above company. He was trying to stop a coal rack partially loaded with coal when he was knocked down and car ran onto him. One leg was mangled below the knee; flange of wheel cut into groin and injured him internally. He died same day of accident.

GEORGE W. COURTNEY.

Miner, employed by the Waddell Coal Company of Wapello county, was killed by a fall of slate in above mine on October 27, 1903. He died about twenty minutes after accident occurred.

BIRD PARKER.

A miner, employed in mine No. 11, of the Consolidated Coal Company of Monroe county, was killed on July 1, 1904, by a fall of slate. He was at work in his room at the time. His neck was broken and head mashed and from appearances he must have been instantly killed.

W. A. SMITH.

A nightman, employed in mine No. 10, of the Consolidation Coal Company of Buxton, was fatally injured by a fall of slate on June 14, 1904. His skull was fractured in two places and death resulted from his injuries two hours after the accident.

WILBUR J. ELY.

A blacksmith, employed by the Spring Creek Coal Company of Mahaska county, was killed on April 20, 1904, by falling from the top of a tower. timbers caught his glove and caused him to fall.

LEVI WOUDI.

A cager, employed by the Dunreath Coal Company, was instantly killed at the above mine on July 15, 1904, by being caught in the cage and carried to the ground landing and dropped back into the shaft. He had signaled to hoist and then afterwards tried to put car on cage and was caught by the cage and was carried to the top of shaft as stated above.

DAVID JACKSON.

David Jackson, a miner employed by the Consolidation Coal Company in mine No. 10 was killed in said mine on the morning of August 20, 1904. He was waiting for shot to go off, and when shot went off it jarred down some slate which fell on him, injuring him so that he died within an hour.

JOHN KOELMAN.

John Koelman, a driver employed in the mine of the Bolton & Hoover Coal Company of Mahaska county, was killed on July 13, 1904, by being run over by a loaded car in the mine. He had failed to sprag car, and in hooking up mule got in front of car and it ran over him.

CHARLES BLANQUERT.

Charles Blanquert, a shotfirer in the employ of the Crescent Coal Company of Mahaska county, was killed on the afternoon of January 11, 1905, while engaged in the performance of his duties as shotfirer. Mr. Blanquert was killed by the shot making a break through into the place where he was when the shot went off. He was killed instantly.

OSCAR NELSON.

April 30, 1905, Oscar Nelson was killed by a fall of slate while engaged in mining coal in the mine at Coalfield. The accident resulting in his death was caused by a fall of slate. Mr. Nelson was working alone at the time, and no one saw the slate fall. He was one of the oldest miners in Coalfield. He lived for about twenty-four hours after the accident.

PORTER GLENN.

Porter Glenn, a miner in the employ of the Mammoth Vein Coal Company of Marion county, was killed on May 19, 1905, by a fall of roof in his room while engaged in his work in one of the mines of the above company.

Total Accidents in District No. 2 for Two Years Ending June 30, 1905.

Date.	Name of Deceased	Occupation.	Cause of Death.	Employed by—	County.
August 15, 1903	Carl J. Peterson	Miner	Fall of slate	Consolidation Coal company	Monroe.
September 30, 1903	Charles Winchell	Driver	Fall of slate	Black Diamond Coal company	Mahaska.
December 22, 1903	David Hopkins	Shotfirer	Flying coal	Consolidation Coal company	Monroe.
December 28, 1903	Emmet Griggs	Top hand	Run over by car	What Cheer Fuel company	Keokuk.
October 27, 1903	Geo. W. Courtney	Miner	Fall of slate	Waddell Coal company	Mahaska.
April 20, 1904	Wilbur J. Ely	Blacksmith	Falling from top of tower	Spring Creek Coal company	Mahaska.
June 1, 1904	Bird Parker	Miner	Fall of slate	Consolidation Coal company	Monroe.
June 14, 1904	W. A. Smith	Nightman	Fall of slate	Consolidation Coal company	Monroe.
July 15, 1904	Levi Woudi	Cager	Caught by cage	Dunreath Coal company	Marion.
August 20, 1904	David Jackson	Miner	Fall of slate	Consolidation Coal company	Monroe.
July 18, 1904	John Koelman	Driver	Run over by car	Bolton & Hoover Coal Co.	Mahaska.
January 11, 1905	Charles Blanquert	Shotfirer	Flying coal	Crescent Coal company	Mahaska.
April 30, 1905	Oscar Nelson	Miner	Fall of slate	Coalfield Mine	Monroe.
May 19, 1905	Porter Glenn	Miner	Fall of slate	Mammoth View Coal Co	Marion.

LIST OF NON-FATAL ACCIDENTS IN THE SECOND DISTRICT FOR THE TWO YEARS ENDING JUNE 30, 1904.

July 18, 1903, Robert Roberts, bellman, two bones in arm broken in Consolidation Coal Company's mine in Monroe county.

July 22, 1903, T. Balzer, refuse mover, Crescent Coal Company, Mahaska county, hand bruised by fall of slate; was necessary to amputate hand.

August 7, 1903, E. T. Ferrand, miner, Illinois & Iowa Fuel Company, Wapello county, leg broken by fall of slate.

August 28, 1903, George Lee, cager, at mine No. 10, Consolidation Coal Company, Monroe county, engineer lost control of engine and cage dropped to bottom of shaft. Thigh was fractured.

August 28, 1903, John Nichols, miner, Consolidation Coal Company, Monroe county, cage dropped to bottom of shaft. Knee dislocated.

August 28, 1903, Elias Swanson, miner, Consolidation Coal Company, Monroe county, cage dropped to bottom of shaft. Both ankles injured and injured internally.

August 28, 1903, Alex Beard, miner, Consolidation Coal Company, Monroe county, engineer lost control of engine and cage dropped to bottom of shaft. Fractured ankle and breast injured.

September 10, 1903, J. C. Slaughter, carpenter, Illinois & Iowa Fuel Company, Wapello county. Fell off scaffold; arm broken.

July 24, 1903, Walter Johnson, coupler, Consolidation Coal Company, Monroe county. Hand mashed and one bone of leg broken.

September 22, 1903, J. Spears, miner, hand crushed by fall of slate, Consolidation Coal Company, Monroe county.

September 23, 1903, C. M. Jones, miner, bruised through bowels by fall of slate in mine of Consolidation Company, Monroe county.

October 9, 1903, Simon Harris, miner, Consolidation Coal Company, Monroe county. Fracture of spine caused by fall of slate.

October 30, 1903, C. J. Johnson, miner, Illinois & Iowa Fuel Company, Wapello county. Crushed by fall of slate.

October 23, 1903, Sampson Hyde, coupler, What Cheer Fuel Company, Keokuk county. Crushed arm by being caught between top of cage and cross arm.

November 26, 1903, W. H. Millhouse, miner, Brown Bros. Mine, Wapello county. Leg broken by fall of slate.

November 25, 1903, Elijah Miller, cager, Consolidation Coal Company, Monroe county. Slipped under cage, right foot mashed and bones broken in foot.

December 5, 1903, W. W. Carey, boss driver, Consolidation Coal Company, Monroe county, was riding on air locomotive and was caught by trap door. Two ribs broken.

December 11, 1903, Richard Graves, night driver, Consolidation Coal Company, Monroe county. Car ran over his foot, mashing bones in heel.

December 14, 1903, A. Meyers, timberman, Consolidation Coal Company, Monroe county. Ankle dislocated and fracture of one leg bone at ankle. Fall of slate.

January 4, 1904, James Dalziel, miner, What Cheer Fuel Company, Keokuk county. Caught under cage. Head bruised and back injured.

January 5, 1904, James Speoe, miner, Illinois and Iowa Fuel Company, Wapello county. Crushed by fall of slate.

January 18, 1904, John Black, gasoline engineer, Consolidation Coal Company, Monroe county. Hand caught in cog wheel. Mashed thumb and first finger off; also bones in wrist so that hand had to be taken off.

January 19, 1904, James Cheves, miner, leg broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

February 12, 1904, R. J. Barber, driver, Consolidation Coal Company, Monroe county. Caught between loaded car and roof. Arm broken.

February 16, 1904, Robert Vaugher, timberman, Consolidation Coal Company, Monroe county. Both legs broken below knees by fall of slate.

March 3, 1904, Joe Melcher, miner, Oskaloosa Coal Mining Company, Mahaska county. Back badly bruised and hip dislocated by fall of slate.

March 4, 1904, Thomas Legon, night driver, Consolidation Coal Company, Monroe county. Was on top of car of timbers when head hit roof. Fracture of skull.

March 6, 1904, S. A. Gantz an electrician, Consolidation Coal Company, Monroe county. Leg broken; fall of slate.

May, 1904, James Smith, miner, Morgan Valley Coal Company, Marion county. He was putting in cut when a piece of sulphur chip struck his eye destroying the sight.

June 1, 1904, Mike Genochis, miner, Bear Creek Coal Company, Wapello county. Badly bruised by fall of slate.

June 2, 1904, E. E. Stuck, miner, Crescent Coal Company, Mahaska county. Head cut and leg bruised by fall of slate.

June 7, 1904, J. C. Jones, miner, Consolidation Coal Company, Monroe county. Foot smashed by fall of slate.

No date, John Coulter, miner, Spring Creek Coal Company, Mahaska county. Ankle bones broken by fall of slate.

June 24, 1904, Roger Griffith, miner, Illinois and Iowa Fuel Company, Wapello county. Crushed by fall of slate.

July 15, 1904, Pete Haney, trapper, arm broken by being caught between car and rib of coal in mine of Dunreath Coal Company, Marion county.

July 11, 1904, William Mason, miner, leg broken by fall of slate in mine of Consolidation Coal Company, Buxton, Monroe county.

August 11, 1904, John Darbollo, track layer, both legs broken by flying coal in mine of Garfield Coal Company, Mahaska county.

August 22, 1904, John Hale, driver, hand mashed by being caught by car in mine of Consolidation Coal Company, Monroe county.

August 23, 1904, Charles Rose, shotfirer, both upper and lower jawbone broken by flying coal in mine of Consolidation Coal Company, Monroe county.

September 1, 1904, G. W. Miller, miner, leg broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

September 17, 1904, Fred Grant, miner, hand mashed by fall of slate in mine of Consolidation Coal Company, Monroe county.

September 27, George Crosby, miner, leg broken by fall of slate in mine of What Cheer Fuel Company, Keokuk county.

September, 1904, Andy Boduar, miner, leg broken by fall of slate in mine of Mammoth Vein Coal Company, Marion county.

October 9, 1904, Sterling Murray, timberman, leg broken by car door falling on him at mine of Consolidation Coal Company of Monroe county.

October 26, 1904, Charles Garland, driver, foot mashed by car running over his foot, Consolidation Coal Company, Monroe county.

October 31, 1904, E. L. Shaw, miner, arm broken by flying coal from shot in mine of Consolidation Coal Company, Monroe county.

November 6, 1904, Rees Matthews, miner, cut on head by fall of slate in mine of Ottumwa Brick and Construction Company, Wapello county.

November 6, 1904, David Matthews, miner, body bruised by fall of slate in mine of Ottumwa Brick and Construction Company, Wapello county.

December 1, 1904, Morgan Phillips, miner, leg broken by fall of slate in mine of Ottumwa Brick and Construction Company, Wapello county.

December 26, 1904, Elmer George, miner and driver, leg broken by fall of slate in mine of Ottumwa Brick and Construction Company, Wapello county.

December 12, 1904, C. S Stone, driver, leg broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

December 17, 1904, Isaac Thomas, miner, internally injured by fall of slate in mine of Consolidation Coal Company, Monroe county.

January, 1905, Hailey Morris, miner, back injured by fall of slate in mine of Lost Creek Fuel Company, Mahaska county.

January 2, 1905, Mike Sirack, cager, foot broken by being run over by car, in mine of Consolidation Coal Company, Monroe county.

January 9, 1905, Mike Brokash, driver, leg broken by being caught by car in mine of Consolidation Coal Company, Monroe county.

January 26, 1905, Sam Rhoder, Jr., miner, collar bone broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

February 6, 1905, Herman Sugar, driver, leg broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

February 6, 1905, T. P. Price, miner, back injured by fall of slate in mine of Phillips Fuel Company, Wapello county.

February, 1905, James Howard, driver, back hurt, fell off chain between car and rib in mine of Mammoth Vein Coal Company, Marion county.

March, 1905, John W. Davis, miner, ribs broken by fall of slate in mine of Mammoth Vein Coal Company, Marion county.

March 14, 1905, Mike Swak, miner, leg broken by fall of slate in mine of Consolidation Coal Company, Monroe county.

April, 1905, Andy Elo, Jr., miner, shoulder dislocated by fall of slate in mine of Mammoth Vein Coal Company, Marion county.

May 4, 1905, George Payton, miner, bruised about the head by fall of slate in mine of Rex Fuel Company, Marion county.

June 9, 1905, Sam Scott, driver, body bruised by being knocked off of car at mine of Raven Coal Company, Mahaska county.

Non-fatal accidents in District No. 2, for two years ending June 30, 1905.

Date.	Name.	Occupation.	Character of Injury.	Cause of Accident.	Mine Where Accident Occurred.	County.
July 18, 1903	Robert Roberts	Bellman	Arm broken		Consolidation Coal company	Monroe.
July 22, 1903	T. Balzer	Refuse mover	Hand bruised, necessary to amputate hand	Fall of slate	Crescent Coal Co.	Mahaska.
July 24, 1903	Walter Johnson	Coupler	Hand Mashed	Fall of slate	Consolidation Coal company	Monroe.
August 7, 1903	E. T. Ferrand	Miner	Broken leg	Fall of slate	Illinois and Iowa Fuel company	Wapello.
August 28, 1903	George Lee	Cager	Broken leg	Engineer lost control of engine and cage dropped to bottom of shaft	Consolidation Coal company	Monroe.
August 28, 1903	John Nichols	Miner	Knee dislocated	Engineer lost control of engine and cage dropped to bottom of shaft	Consolidation Coal company	Monroe.
August 28, 1903	Elias Swanson	Miner	Both ankles injured	Engineer lost control of engine and cage dropped to bottom of shaft	Consolidation Coal company	Monroe.
September 22, 1903	J. Spears	Miner	Hand crushed	Fall of slate	Consolidation Coal company	Monroe.
September 28, 1903	C. M. Jones	Miner	Body bruised	Fall of slate	Consolidation Coal company	Monroe.
August 28, 1903	Alex Beard	Miner	Fractured ankle	Engineer lost control of engine and cage dropped to bottom of shaft	Consolidation Coal company	Monroe.
September 10, 1903	J. C. Slaughter	Carpenter	Arm broken	Fell off scaffold	Illinois and Iowa Fuel company	Wapello.
October 9, 1903	Simon Harris	Miner	Fracture of spin	Fall of slate	Consolidation Coal company	Monroe.
October 23, 1903	Sampson Hyde	Coupler	Body crushed	Caught by cage	What Cheer Fuel company	Keokuk.
October 30, 1903	C. J. Johnson	Miner	Body crushed	Fall of slate	Illinois and Iowa Fuel company	Wapello.
November 26, 1903	W. H. Millhouse	Miner	Leg broken	Fall of slate	Brown Bros. mine.	Wapello.
November 25, 1903	Elijah Miller	Cager	Foot mashed	Slipped under cage	Consolidation Coal company	Monroe.

December	5, 1903	W. W. Carey	Driver	Ribs broken	Caught by trap door	Consolidation Coal company	Monroe.
December	11, 1903	Richard Graves	Driver	Foot mashed	Car ran over foot	Consolidation Coal company	Monroe.
December	14, 1903	A. Meyers	Timberman	Ankle dislocated	Fall of slate	Consolidation Coal company	Monroe.
January	4, 1904	James Dalziel	Miner	Back injured	Caught under cage	What Cheer Fuel company	Keokuk.
January	5, 1904	James Speoe	Miner	Body crushed	Fall of slate	Illinois and Iowa Fuel company	Wapello.
January	18, 1904	John Black	Gasoline engineer	Hand mashed	Hand caught in cog wheel	Consolidation Coal company	Monroe.
February	12, 1904	R. J. Barber	Driver	Arm broken	Caught between loaded car and roof	Consolidation Coal company	Monroe.
February	16, 1904	Robert Vaugher	Timberman	Both legs broken	Fall of slate	Consolidation Coal company	Monroe.
March	3, 1904	Joe Melcher	Miner	Hip dislocated	Fall of slate	Oskaloosa Coal Mining company	Mahaska.
March	4, 1904	Thomas Legon	Driver	Fracture of skull	Caught by car	Consolidation Coal company	Monroe.
March	6, 1904	S. A. Gantz	Electrician	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
May,	1904	Jas. Smith	Miner	Sight of one eye destroyed.	Struck by piece sulphur chip	Morgan Valley Coal company	Marion.
June	1, 1904	Mike Genochis	Miner	Badly bruised	Fall of slate	Bear creek mine	Wapello.
June	2, 1904	E. E. Stuck	Miner	Head cut and leg bruised	Fall of slate	Crescent Coal Co.	Mahaska.
June	7, 1904	J. C. Jones	Miner	Foot mashed	Fall of slate	Consolidation Coal company	Monroe.
Winter,	1904	John Coulter	Miner	Ankles broken	Fall of slate	Spring Creek Coal company	Mahaska.
June	24, 1904	Roger Griffith	Miner	Body crushed	Fall of slate	Illinois and Iowa Fuel company	Wapello.
July	15, 1904	Pete Haney	Trapper	Arm broken	Caught between car and rib	Dunreath Coal Co.	Marion.
July	11, 1904	Wm. Mason	Miner	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
August	11, 1904	John Darbollo	Tracklayer	Both legs broken	Flying coal	Garfield Coal Co.	Mahaska.
August	22, 1904	John Hale	Driver	Hand mashed	Caught by car	Consolidation Coal company	Monroe.
August	23, 1904	Chas. Rose	Miner	Both upper and lower jaw-bone broken	Flying coal	Consolidation Coal company	Monroe.
September	1, 1904	G. W. Miller	Miner	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
September	17, 1904	Fred Grant	Miner	Hand mashed	Fall of slate	Consolidation Coal company	Monroe.
September	27, 1904	Geo. Crosby	Miner	Leg broken	Fall of slate	What Cheer Fuel company	Keokuk.
September,	1904	Andy Boduar	Miner	Leg broken	Fall of slate	Mammoth Vein Coal company	Marion.

NON-FATAL ACCIDENTS—CONTINUED.

Date.	Name.	Occupation.	Character of Injury.	Cause of Accident.	Mine where Accident Occurred.	County.
October 9, 1904	Sterling Murray	Timberman	Leg broken	Car door fell on him	Consolidation Coal company	Monroe.
October 26, 1904	Chas. Garland	Driver	Foot mashed	Car ran over foot	Consolidation Coal company	Monroe.
October 31, 1904	E. L. Shaw	Miner	Arm broken	Flying coal	Consolidation Coal company	Monroe.
November 6, 1904	Rees Matthews	Miner	Cut on head	Fall of slate	Ottumwa Brick and Construction Co.	Wapello.
November 6, 1904	David Matthews	Miner	Body bruised	Fall of slate	Ottumwa Brick and Construction Co.	Wapello.
December 1, 1904	Morgan Phillips	Miner	Leg broken	Fall of slate	Ottumwa Brick and Construction Co.	Wapello.
December 26, 1904	Elmer George	Miner	Leg broken	Fall of slate	Ottumwa Brick and Construction Co.	Wapello.
December 12, 1904	C. S. Stone	Driver	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
December 12, 1904	Isaac Thomas	Miner	Internally injured	Fall of slate	Consolidation Coal company	Monroe.
January, 1905	Hailey Morris	Miner	Back injured	Fall of slate	Lost Creek Fuel Co.	Mahaska.
January 2, 1905	Mike Sirack	Cager	Bones of foot broken	Run over by car	Consolidation Coal company	Monroe.
January 9, 1905	Mike Brokash	Driver	Leg broken	Caught by car	Consolidation Coal company	Monroe.
January 26, 1905	Sam Rhodes, Jr	Miner	Collar bone broken	Fall of slate	Consolidation Coal company	Monroe.
February 6, 1905	Herman Sugar	Driver	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
February 6, 1905	T. P. Price	Miner	Back injured	Fall of slate	Phillips Fuel Co	Wapello.
February, 1905	Jas. Howard	Driver	Back hurt	Squeezed between car and rib of coal	Mammoth Vein Coal company	Marion.
March, 1905	John W. Davis	Miner	Ribs broken	Fall of slate	Mammoth Vein Coal company	Marion.
March 14, 1905	Mike Swak	Miner	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
April, 1905	Andy Elo, Jr	Miner	Shoulder dislocated	Fall of slate	Mammoth Vein Coal company	Marion.
May 4, 1905	Geo. Payton	Miner	Bruised about head	Fall of slate	Rex Fuel company	Marion.
June 9, 1905	Sam Scott	Driver	Body bruised	Knocked off car	Raven Coal Co.	Mahaska.

MAHASKA COUNTY.

Mahaska, for years the leading coal county of the State but which for the past five years has shown a decrease in its production, is again coming to the front with new mines that are well equipped with the latest improved machinery, and these mines give every assurance of an increase in the production the coming year.

This county has still a large and undeveloped coal area and with the new mines already opened and under construction will again forge to the front.

The Garfield Coal Company has opened a new slope, No. 3, two miles west of Beacon; also one two and one-half miles southwest of Evans. This shaft is sunk in a new field of coal with four or five hundred acres proven to be underlaid with a thick seam. This shaft will be equipped with modern machinery and will have a capacity of about 1,000 tons daily.

Mr. William Cricket has a shaft in the vicinity of White City, which is equipped to hoist a large tonnage.

Bolton & Hoover Coal Company of Bolton is a new mine with Mr. J. W. Canty in charge, and this mine is a good producer. The Union Coal company, two miles north of Buxton, has a new mine located on the North-Western railroad. The National Union Coal company, located three and one-half miles southwest of Beacon, is a new mine on the C., R. I. & P. railway.

This county produced for the biennial period ending June 30, 1905, 1,206,837 tons of coal

There were five fatal and seven non-fatal accidents reported from the mines of this county during the past two years.

MONROE COUNTY.

But a very small portion of this county is included in the Second District, the county properly being a part of the First District, but on account of that portion of the county lying north and east of the C., B. & Q. railroad being so difficult for the inspector in the First District to reach by railroad, and the tonnage decreasing so rapidly in the Second District to make the districts more equal the county was divided as above. The portion of the county in the Second District includes the mines of the Central Coal Company at Lockman, the Miller Creek Coal Company with mines near Coalfield, and the Consolidation Coal Company with mines near Buxton. This last is one of the largest companies in the State, and they are now operating four large mines in the vicinity of Buxton and are at present engaged in opening up a fifth, and this last one gives evidence of being a large producer. This company has the best equipped and best ventilated mines in the State. For the two years ending June 30, 1905, this company produced more than a million and a half tons of coal.

The Central Coal Company located near Lockman also does an extensive shipping business. The Miller Creek Coal Company have mines near Coalfield and do a good business.

WAPELLO COUNTY.

This county has steadily increased the output of coal for the last ten years, and in this last biennial period has produced 691,212 tons. The coal in this county is fine for steam and domestic purposes and the seam varies from three and one-half to five feet in thickness.

Mr. George Ramsay, of the Garfield Coal Company of Mahaska county, has prospected a coal field about three and one-half miles north of Ottumwa. The results were very favorable and this company will open and equip a mine for a large tonnage.

C. A. Hoover of Oskaloosa is prospecting south of Ottumwa some four miles, on a large tract of land, and Henry Phillips is drilling north and east of Rutledge, while the Jones Bros. are drilling north of the present mine they are operating.

There are fifteen mines in this county; five of these are shipping mines located on the Chicago, Burlington & Quincy Railroad, the Chicago, Rock Island & Pacific Railroad and the Milwaukee Railroad.

The reports coming to this office would indicate that several new mines will be opened up in the near future.

There were twelve non-fatal accidents reported from the mines of this county for the biennial period ending June 30, 1905.

MARION COUNTY.

This county has been a large coal producer for many years and is constantly increasing its coal tonnage. The coal measures that are now worked are among the thickest in the State, ranging from four to twelve feet in thickness, and found at a depth of from fifty to 150 feet.

The principal field is now worked by the Mammoth Vein Coal company, who, by the way, are the pioneer coal men in this county. This company, in addition to their No. 5 mine, has in the last two years opened up three large slopes. Two of them will have steam power, and the other one in addition to their No. 5 mine will be equipped with electric haulage. When these mines are fully developed this company will be one of the largest coal producers in the State.

There are at present numerous drilling machines at work and the results from this prospecting seem to be satisfactory, as new companies are buying large tracts of land with a view to opening mines, and other large companies are constantly adding to their already large holdings.

Several small openings have been made in various parts of the county which will mine coal through the fall and winter months, and furnish employment to a number of men.

VAN BUREN COUNTY.

This is another of the small coal producing counties of the State. The mines are located in the vicinity of Douds Station, and in and near Farmington.

Findlay & Son have operated mines very profitably for a number of years about two miles north of Douds Station. They haul the coal produced to Douds Station in wagons and deliver the same to the C., R. I. & P. Railway company, who handle their entire output. By reason of their having a contract with the railroad company they are able to operate their mines the entire year. The Ratcliff Coal Company, also located north of Douds, supply coal to the Rock Island road, delivering it in wagons, and they operate the entire year.

A number of small mines located near Douds and near Farmington do a good business supplying the local trade during the fall and winter months. The coal in this county is of a good quality and the veins run from three to four feet in thickness.

KEOKUK COUNTY.

This county at one time enjoyed the distinction of being one of the large coal producing counties of the State, but of late years the coal production of this county has become less and less each year, until now it produces less than one-fourth what it did ten years ago, and unless new fields are opened soon it will not be long until it will cease to be classed with the coal producing counties of the State. Whereas, in former years hundreds of thousands of tons of coal were shipped from this county, now the business is for the most part local and the small mines are operated only during the fall and winter months. For the year ending June 30, 1894, this county produced 215,625 tons of coal, and ten years later (1904) the production had fallen to 52,375 tons, and each year this tonnage will be less as no new mines are being developed and the older ones are being worked out and abandoned.

The coal production of this county for the two years ending June 30, 1905, was 70,566 tons. One fatal and two non-fatal accidents were reported from the mines of this county during the biennial period ending June 30, 1905.

DAVIS COUNTY.

But little coal is mined in this county, but what is produced is of a very good quality, the vein averaging about three feet in thickness. The most of the operations of mining are confined to the vicinity of Laddsdale, Lunsford and Belknap and one mine is located near Floris.

It has been reported to this office that a coal mining company was recently organized at Bloomfield. This company has drilled several prospect holes near Belknap and have found a good vein of coal averaging three and one-half feet in thickness. Preparations are being made to open a mine and equip it for a good tonnage.

No fatal or non-fatal accidents were reported from the mines of this county during the past two years.

Possibly at some time in the future this county will produce much more coal than it does now, as this county joins Appanoose county, which is one of the best producing counties in the State.

WARREN COUNTY.

The coal tonnage in this county runs from ten to fifteen thousand tons yearly. The larger mines of the county are located near Somerset. But two of these do a shipping business. Most of the mines of the county are purely local and are in operation only during the fall and winter months. A few mines are operated near Milo, some near Liberty Center, and some near Lacona.

Owing to the fact that the railroad facilities are not the best in this county partly explains the small production of the county. With the advent of more railroads in the county a larger tonnage will be mined, as there is no doubt but what there is considerable land underlaid with coal in the county.

Two different seams have been worked; the upper seam is about three feet thick and is worked long-wall, the lower seam is somewhat thicker and is worked on the room and pillar plan.

This county produced for the biennial period 20,120 tons of coal. No fatal or non-fatal accidents were reported from the mines of this county during the past two years.

JEFFERSON COUNTY

The production of coal in this county is very limited. While coal has been mined in the county for a number of years, operations have not been extensive as the demand is purely local. There are a number of small mines south and west of Fairfield that do a very profitable business during the fall and winter months in supplying the local demand of Fairfield and other towns in the county. The Perlee Fuel company have recently opened a new mine near Perlee, and the outlook for the mine is good. The coal in this county is about three and one-half feet in thickness and generally free from impurities. No accidents were reported from the mines of this county during the past two years.

WAPELLO COUNTY.

Phillips Fuel company	A. J. Erskin	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Shipping.
South Ottumwa Coal company	Willis Grooms	Ottumwa	Shaft	Room and pillar.	Furnace	Horse	Local.
Star Coal company	Jas. Flanders	Ottumwa	Slope	Room and pillar.	Fan	Steam	Local.
Anchor Coal Company No. 2	W. R. Daum	Laddsdale	Shaft	Room and pillar.	Fan	Steam	Shipping.
Brown Bros. Coal company	Chas. Brown	Keb	Shaft	Room and pillar.	Fan	Steam	Local.
Ottumwa Brick & Construction company	D. J. Lloyd	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Local.
Carbon Coal company	Wm. Foulks	Willard	Shaft	Room and pillar.	Fan	Steam	Local.
Greenview Coal company	J. F. Lilly	Ottumwa	Shaft	Room and pillar.	Furnace	Horse	Local.
Jones Coal company	David Jones	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Local.
Roseland Coal company	A. D. Lumsden	Ottumwa	Shaft	Room and pillar.	Fan	Steam	Shipping.
Styers Bros. Coal company	Edward Styer	Ottumwa	Shaft	Room and pillar.	Fan	Horse	Local.
Bear Breek coal company	Jacob Allen	Bear Creek	Slope	Room and pillar.	Fan	Steam	Shipping.
Waddle Bros. Coal company	J. Waddle	Ottumwa	Slope	Room and pillar.	Furnace	Horse	Local.

KEOKUK COUNTY.

Maxwell Coal company	Robt. Maxwell	What Cheer	Shaft.	Room and pillar.	Natural	Horse	Local.
Karston Bros. Coal company	Tom Karston	What Cheer	Shaft	Room and pillar.	Natural	Horse	Local.
Grudgings Bros. Coal company	Dan Grudgings	What Cheer	Shaft	Room and pillar.	Natural	Horse	Local.
Moffat, Milburn & Kuhns Coal company		What Cheer	Shaft.	Room and pillar.	Natural	Horse	Local.

MONROE COUNTY.

Central Coal Company No. 1	T. L. Evans	Lockman	Slope	Room and pillar	Furnace	Steam	Shipping.
Central Coal Company No. 2	T. L. Evans	Lockman	Slope	Room and pillar.	Furnace	Horse	Shipping.
Consolidation Coal Company No. 10	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal Company No. 11	B. C. Buxton	Buxton	Shaft.	Room and pillar.	Fan	Steam	Shipping.
Consolidation Coal Company No 12	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal Company No. 13	B. C. Buxton	Buxton	Shaft	Room and pillar.	Fan	Steam	Shipping.
Ackers Coal company	Jas. Boden	Coalfield	Slope	Room and pillar.	Furnace	Horse	Shipping.
Miller Creek Coal company		Coalfield	Drift	Room and pillar.	Fan	Steam	Shipping.

VAN BUREN COUNTY.

H. Findlay & Son Coal company	H. Findlay	Douds	Shaft	Room and pillar.	Furnace	Horse	Shipping.
Hassler & Company Coal company	John Hassler	Farmington	Shaft	Room and pillar.	Furnace	Horse	Shipping.
A. R. Gardener Coal company	A. R. Gardener	Bentonsport, R. R. 1	Shaft	Room and pillar.	Furnace	Horse	Local.
Ratcliff Coal company	H. L. Ratcliff	Douds	Shaft.	Room and pillar.	Furnace	Horse	Shipping.
Cahill Coal company	P. M. Cahill	Farmington	Shaft	Room and pillar.	Furnace	Horse	Local

WARREN COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Diamond Coal company	Bert W. Williams	Lacona	Shaft	Room and pillar	Furnace	Horse	Local
Bryant Coal company	S. C. Bryant	Milo	Shaft	Room and pillar	Furnace	Horse	Local
Somerset Coal company	R. W. Earle	Somerset	Shaft	Room and pillar	Fan	Horse	Shipping
Utterson & Milligan	D. L. Utterson	Carlisle	Shaft	Long wall	Furnace	Horse	Local
Bales Coal company	M. D. Bales	Milo	Shaft	Room and pillar	Furnace	Horse	Local

JEFFERSON COUNTY.

Perlee Fuel company	B. B. Stuff	Perlee	Slope	Room and pillar	Grate	Horse	Local
George T. Stever company	Geo. T. Stever	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local

DAVIS COUNTY.

J. M. Sickle Coal company	J. M. Sickle	Floris, R. F. D. No 8	Slope	Room and pillar	Furnace	Horse	Local
Big Diamond Coal company	A. C. Lunsford	Lunsford	Shaft	Room and pillar	Furnace	Horse	Local
C. D. Sharp mine	C. D. Sharp	Laddsdale	Shaft	Room and pillar	Furnace	Horse	Local

TABLE No. 1.

Showing number of mines, output of coal, number of miners and other employes in District No. 2, for year ending June 30, 1904.

Name of County.	Number of mines.	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Mahaska	14	530,428	872	226	150	1,248
Warren	5	10,637	42	8	9	59
Keokuk	8	52,375	80	28	19	127
Van Buren	6	17,844	33	5	15	53
Marion	18	346,629	581	144	81	806
Monroe	7	690,427	902	379	152	1,433
Jefferson	1	875	3	0	1	4
Davis	1	125	4	4	1	9
Wapello	12	323,183	531	154	106	791
Total	72	1,972,523	3,048	948	534	4,530

TABLE No 2.

Showing number of mines output of coal, number of miners and other employes in District No 2. for year ending June 30, 1905.

Name of County.	Number of mines.	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Mahaska	22	676,409	1,071	289	149	1,509
Warren	5	9,483	48	11	9	68
Keokuk	6	18,191	28	8	7	44
Van Buren	6	12,648	24	5	15	44
Marion	19	372,855	601	159	80	840
Monroe	7	987,770	1,114	335	97	1,546
Jefferson	2	2,050	9	1	2	12
Davis	3	1,115	11	6	4	21
Wapello	12	368,059	665	149	106	910
Total	82	2,448,550	3,572	963	459	4,994

THIRD DISTRICT.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit herewith the report of the Third Inspection District, covering the biennial period ending June 30, 1905.

Very respectfully,

EDWARD SWEENEY,

Inspector Third District.

REPORT OF THIRD DISTRICT.

This district includes the following counties as producers of coal: Polk, Jasper, Boone, Webster, Greene, Dallas, Guthrie and Scott.

It is difficult to determine the whole number of mines producing coal within the territorial jurisdiction of the Third Inspection District, as there are so many small openings in the district that employ from one to three men. Such places produce some coal, but to secure data as to tonnage is almost impossible. There are, however, more than sixty shipping mines in the counties above named, and over one hundred mines covered by observation of the entire district. There have been opened, developed, or under construction during the biennial period twenty-six mines. Several more are in contemplation. Twenty-nine mines have been abandoned in the district during the biennial period. These were mostly small local mines employing during the fall and winter months from four to ten men.

WORK AND WAGES.

Although the mines of the district have not worked steadily the past few months, yet the fact remains that the tonnage of the district has increased materially and during the past year there has been mined in the district more than 2,000,000 tons of coal, an excess, as shewn by the tables, over what has been mined in former years. This increased tonnage is due to the fact that many more miners were employed during the past year in the mines of the district than were ever employed before.

During the month of April, 1904, all the coal mines of the State were idle for about three weeks, owing to a difference of opinion as to terms of the wage scale agreement which, however, was amicably adjusted, thanks to the good sense and business judgment of our miners' officers and operators' association, and the wages in our mining industry will remain stable and unchanged until April 1, 1906. The rate is satisfactory and good, compared with other industries; in fact it is generally conceded that our coal miners have a wage scale and employment conditions that are suggestive of intelligent conservatism in the management of their organization and negotiations with the Iowa coal operators. It is an evidence of intelligence and honesty in the joint wage movement existing between our coal operators and coal miners that merits consideration.

Work has been dull for several months and the mine workers net earnings have diminished accordingly. The Iowa coal operator requires a close vigilance to stay the crowding encroachments of cheap coal produced in eastern fields, where nature has favored the mine owner with a thick coal which is usually easily mined.

POLK COUNTY.

Polk county ranks as the second coal producing county in the State of Iowa; the first in the State being Monroe county, situated in the southeastern part of the State. The future prospects of Polk county in the coal business are bright, owing to the fact that there were recently opened up, several new mines, which will be large coal producers and do a large shipping business when fully developed. The majority of these new mines are equipped with the latest improved machinery which will facilitate the handling of a large tonnage, and these new mines will give employment to several hundred more men. There has also been a great deal of prospecting going on in this county within the past few months, and if reports are correct, it will be a question of only a short time until Polk will be the leading coal county in the State.

There are more than thirty coal producing mines in Polk county at the present time and a number of these have a capacity of from 500 to 700 tons per day. Out of the above number of mines there are ten or fifteen which depend entirely on local trade throughout the fall and winter months and do a very profitable business at this season of the year.

The coal fields in Polk county start in the southeastern part of the county and extend as far north as Enterprise. The majority of the mines are within a radius of six miles of the court house. While there is considerable coal shipped into Des Moines for local consumption, at the same time we have several large railroad mines that ship their entire output to the north and west and do not supply any coal for local consumption. In fact several thousand more tons of coal are mined here each year than could possibly be used in Des Moines and Polk county.

The increased growth of the manufacturing business in Des Moines has had much to do with the development of the coal industry of Polk county. Many manufacturing establishments are here; others are coming, for they realize the value of good railroad facilities and plenty of good fuel right at hand, and these Des Moines and Polk counties have to offer. This influx of manufacturing establishments offers an incentive to coal operators to develop this field, and we look for an increased growth in the coal industry the coming year.

Two fires have occurred in this county during the biennial period. On the night of August 13, 1904, fire destroyed the shaft house and a portion of the dump trestle of the Coaldale Fuel Company, burned two cars of coal standing on the track near the mine, a large amount of valuable machinery, and resulted in throwing about 150 men out of employment until the shaft house was rebuilt. The property loss approximated close to ten thousand dollars.

On November 19, 1904, fire destroyed the engine and boiler house of the O. K. Coal Company, located north of Des Moines, entailing considerable of a loss.

NEW MINES OPENED.

The West Riverside Coal Company has opened up a new mine known as No. 2, on the Interurban Railroad northwest of Des Moines, and about one-

half mile east of their No. 1 shaft. This mine is being equipped with modern machinery and when fully developed will give employment to 150 or 200 miners.

Walnut Creek Coal Company mine is located southwest of the city of Des Moines and has railroad connections with the C., M. & St. Paul Railroad. This mine when fully equipped will employ from fifty to seventy-five men.

The Bennett Bros., old and experienced coal men, have opened up a large mine southwest of Des Moines. The mine is well equipped and will furnish employment to over 100 men.

The Maple Block Coal Company has opened by shaft a new mine known as No. 2, located northeast of Des Moines. This is a good property and is sure to figure prominently in the coal business of Iowa for a long period of years. Some 150 miners are employed and shipping is done over the Rock Island railroad. The machinery and equipment are first class, and the management very capable men.

The Hollingsworth Coal Company of Des Moines has recently sunk a shaft 7 x 14 feet in size and 156 feet deep. The location is about three and one-half miles southwest of Des Moines. The coal is from four to five feet in thickness and is of a good quality. Several hundred acres of coal was proven ere sinking was commenced. This is sure to prove a valuable property and ought to be good for a number of years.

The Deer Creek Coal Company mine is located about a mile and a half from the Enterprise mine, along the same line of railroad. This mine is equipped to handle a large tonnage. The company has also erected a large number of houses to accommodate their employes.

BOONE COUNTY.

Boone county ranks second in coal production in the Third District, its output for the year ending June 30, 1904, being 345,472 tons, and for the year ending June 30, 1905, 421,802 tons, making a total of 767,274 tons for the biennial period. This production shows a net gain of 192,919 tons of coal over the preceding biennial period.

There are seventeen mines in operation in this county, with an annual output of more than 350,000 tons of coal. All of these mines but three are shipping mines and are operating fairly regular during the entire year.

The coal measures of Boone county extend north and south across the entire county, along the Des Moines river. The principal mining, however, is done around Fraser and Boonsboro, in the north and central portions of the county. Some small mines are in operation in the southern part of the county, but little mining is done. Formerly there was a great deal of coal mined in the vicinity of Angus, and while the vein there ranges from four to six feet in thickness there is usually a large volume of sand and water overlaying a thin strata of slate, making a bad roof, and the coal can not be mined at a profit.

The coal in Boone county is of an excellent quality for commercial purposes and is found at depths varying from thirty to two hundred and fifty feet.

The mines around Boonsboro have direct connection with the main line of the Chicago & Northwestern railroad, while the mines at Fraser connect with the Newton & Northwestern, and the Minneapolis and St. Louis lines running north; thus affording excellent facilities for the shipment of coal into the territory where no coal is produced. The smaller mines not doing a shipping business supply the local demand only and are usually operated through the fall and winter months.

This county has for years been a large producer and will continue to be for many years to come. While the vein is not as thick as in the central part of the Iowa coal field, yet it is of a uniform thickness and of a good quality and is said to be mined at a profit to both the operator and the miner.

There has been a great deal of prospecting done recently west of Boone, and reports coming to the inspector's office would indicate that there will be some new openings in this field in the near future.

Among the largest coal producers in this county, are the Boone Valley Coal & Railroad Company, which operates four shafts and one slope near Fraser and produce nearly one-third of the entire tonnage of the county. The W. D. Johnson Coal Company, the Crowe Coal Mining Company, the Heaps & Crowe Coal Company, the Rogers Coal Company and the Heaps Coal Company. These latter are located near Boonsboro.

The condition of the mines in Boone county have been much improved in late years, especially with regard to ventilation, safety catches, and covers on the cages, and other safety appliances, escape shafts and better traveling ways.

There were two fatal and six non-fatal accidents reported from this county for the biennial period ending June 30, 1905.

JASPER COUNTY.

Jasper county produces annually over 300,000 tons of coal, being the third largest coal producing county in the Third District. Coal has been mined in this county for more than forty years. Veins of coal in this county run from three to six feet in thickness.

The Colfax Consolidated Coal Company's mines are among the largest in the State. This company operates two large mines, Nos. 6 and 7, the former located three miles south of Colfax, and the latter at Seevers, four miles from Colfax. They are now opening another mine, No. 8, and this new mine will be connected with the switch running up to No. 7 mine. They are equipping their No. 8 with the latest and best machinery, and when the mine is fully developed it will be one of the largest coal producers in Jasper county and will rank among the best in the State.

Three miles south of Newton is the oldest mining field in the county and mining operations are still carried on there. At present four good local mines are operated, viz., Snooks, Listers, Carsons and French. They employ from six to fifteen miners each during the fall and winter months and the coal from these mines is sold locally and in Newton. There is also the

Worrick Bros. Coal Company of Colfax with an output of about 5,000 tons per year, and the C. M. Norris Company of Prairie City with a lesser production. Other small mines employing from two to six men in the winter months are located at different parts of the county. All the mines in this county are worked on the room and pillar plan and furnish employment to about 700 miners and other workmen.

The Diamond Coal Company opened up a new mine the fall of 1904. This mine is located one and one-half miles northeast of Mitchellville and is a shaft opening, 128 feet deep. The vein is about four feet in thickness of a very good quality. The mine will depend on local trade entirely as they do not have railroad connections.

There were two fatal and seventeen non-fatal accidents in the mines in this county during the past two years.

WEBSTER COUNTY.

Webster county with fifteen mines in operation produces annually about 160,000 tons of coal. Nine of these mines do a shipping business and six supply the local demand only. Nearly 500 men are furnished employment.

The principal coal fields in this county are located near Lehigh, Coalville and Kalo. Owing to the fact that Webster county occupies the extreme northern part of the Iowa coal fields gives to the county an excellent market for its output in the counties north and west.

The mines at Lehigh, Kalo and Coalville have connection with the main line of the Chicago Great Western Railway, running north. The mines at Lehigh also have connection with the Crooked Creek Railroad, which runs to Webster City and connects with the main line of the Illinois Central, running east and west.

The local mines usually start mining operations about the first of September and run only through the fall and winter months. The coal in this county varies in thickness from two and one-half to four feet, and is found at depths varying from sixteen to one hundred feet, beneath the surface. The quality of the coal is good and the mines are generally well equipped and in good condition.

Two accidents, one fatal and one non-fatal, occurred in the mines of this county during the biennial period ending June 30, 1905.

GUTHRIE COUNTY.

There are a number of small mines in this county, the majority of them being located near Fansler, Bayard and Panora. The Raccoon river runs diagonally across the county and most of the mines are located near the river. None of these mines are large and most of them are too far from the railroads to do a shipping business and they are, therefore, purely local mines employing from five to twenty-five miners during the fall and winter months. The majority of these mines commence taking out coal about the first of September, as that is about the time the local trade begins, and they continue to operate until spring when they shut down till fall again.

On account of lack of shipping facilities the mining of coal has not been developed to any great extent, yet I believe the time is not far distant when the county will produce much more coal than is needed for home consumption. The coal vein in this county does not run as thick as the coal vein in other parts of the State, yet it is easily mined and should be handled at a profit to the operator.

The mines in this county vary in depth from fifty to one hundred and twenty feet and the majority of the shaft mines are operated by horse power, while the miners in the drift mines push their coal out. There were 58,769 tons of coal produced in this county the past two years, and this is a decided increase over the tonnage of former years. But few of the mines make the necessary improvements to store coal ready for the extra demand during the winter months and as a consequence there are many times when the local demand can not be satisfied, and much business is thus lost to the operators.

The mines of this county are all worked on the long-wall system of mining, and the natural conditions favor this method of mining. The coal thus mined is nearly all lumps and is of a good quality, being very hard, bright, and a free burner. I believe with good railroad facilities this coal could be produced as cheaply as in any other part of the State.

On my first tour of inspection of this district I found many of the mines with but one opening. I immediately ordered that the number of men working under such conditions be reduced to four to comply with section 2486 of the State mining laws, until the second opening was made. A number of the companies immediately started to sink escape shafts, while others simply complied with the law by reducing the number of men employed and running on a smaller scale. For the most part the conditions existing in the mines of this county were found to be satisfactory, as regards sanitary conditions, general safety appliances, etc.

No fatal or non-fatal accidents were reported from this county during the p st two years.

GREENE COUNTY.

But six mines are now in operation in this county, three of which are located at Angus, two at Rippey, and one at Grand Junction. The entire output from these mines is about 18,000 tons yearly. Most of the coal mined is found in the southeastern part of the county, and the coal in this field generally lays near some creek tributary to the north branch of the Raccoon river. There has been a decrease in the production of coal in this county in recent years. Only about one sixth of the former tonnage is mined as compared with that of twenty years ago.

The Keystone Coal Company of Angus is the largest producer in the county at present and it has an annual output of about 7,000 tons. Next comes the Michael Feith mine of Angus with a tonnage of 6,000 annually. Following these are the mines of the Goodwin Coal Company of Grand Junction, the Ditchburn Coal Company of Angus, the Willow Grove Coal Company of Angus and the Snake Creek Coal Company of Rippey. This latter is a new mine opened during the fall of 1904.

The Keystone Coal Company employs from twenty to twenty-five men, and the other companies from eight to twenty each. The Goodwin Coal Company does some shipping. The others run during the fall and winter months, only, and supply the local demand.

But two accidents, one fatal and one non-fatal have been reported from this county during the past two years.

SCOTT COUNTY.

Scott county is located in the eastern part of the State and is a river county. The first coal was mined here more than half a century ago, the principal mines being located in the vicinity of Buffalo and Jamestown, in the southern part of the county.

The coal lies in pockets and is worked by shaft openings at the depth of from fifty to seventy feet. It is hoisted to the surface by the gin method. The seams are from two and one-half to three feet in thickness. Most of the coal in this county is mined by the pick method and after being mined is wedged down, no powder being used.

The important mines in the county are: The Long mine, operating near Jamestown and employing from ten to fifteen men, with an annual output of about 2,000 tons. The Sass Bros. Coal Company near Jamestown employ from eighteen to twenty men and have an annual output of 3,500 tons. The Langwith Coal Company near Jamestown employ from eight to ten men and produce about 2,500 tons annually. Carlin & Buchmeyer near Jamestown employ from twelve to fifteen men and have an output of about 3,500 tons annually.

These mines do not do a shippiug business as they are not located on a railroad, and most of the coal is sold at the mines locally, and the balance is delivered by wagons to Davenport and sold there. The coal is of good

quality and is sold at a good price. All the mines in this county have a second opening and are ventilated by furnaces, which supply sufficient ventilation for all requirements.

There were no accidents from the mines of this county reported to this office.

DALLAS COUNTY.

The coal measures in this county are about the same as in Guthrie county, but not so many mines are in operation. The leading mines are those of the Hutchison Bros. at Dawson, and of the Reese Bros. at Madrid. The former are operating a mine two miles west of Dawson. The depth of the main shaft is eighty feet, and thickness of the vein worked about three and one-half feet. This mine is equipped with steam power and is ventilated with a fan. The output of this mine is about 6,000 tons per year.

The Reese Bros. are operating two mines about six miles south of Madrid. Their mines are also equipped with steam power, and they have a tonnage of about 7,000 per year. Other mines are those of the Vernon Coal Company and William Knox operating mines near Madrid. The Mills Coal Company also operate a small mine near Linden. The mine at Van Meter, formerly one of the largest coal producers in the county, has been closed down for some time. There were two non-fatal accidents reported from this county during the biennial period ending June 30, 1905.

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT.

POLK COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Des Moines Coal company	Chas. Morris	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Saylor Coal company	J. D. Owen	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 3	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 4	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Norwood Coal company	Josh Norwood	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Gibson Coal company	John Gibson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Maple Block Coal company	C. A. Swanson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Bloomfield Coal company	George Yarn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Keystone Coal company	E. M. Gray	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Eagle Coal company	G. M. Holmes	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Midway Coal company	E. Z. Row	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
West Riverside Coal company	Joseph Jones	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Flint Brick and Coal company	Mike Quinn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Center Coal company	Isaac Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Oak Park Fuel company	J. P. McClelland	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
O K Coal Coal company	Benj. Mann	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Glenwood Coal company	Caleb Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Elko Coal company	Thos. Beck	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Capital Coal company	Daniel Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Madison Coal company	Ralph Madison	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Walnut Creek Coal company	Ben Bosley	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Economy Coal company	W. E. Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Hollingsworth Coal company	Geo. Simpson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Bennett Bros Coal company	Edward Herdman	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Coaldale Fuel company	O. M. Carpenter	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Diamond Joe Coal company	John Shuler	Runnells	Shaft	Room and pillar	Fan	Sterm	Shipping.
Enterprise Coal company	G. E. Walters	Enterprise	Shaft	Room and pillar	Fan	Steam	Shipping.
Deer Creek Mining company		Enterprise	Shaft	Room and pillar	Fan	Steam	Shipping.
Valley Coal & Mining company	H. Bosley	Commerce	Shaft	Longwall		Steam	Shipping.

WEBSTER COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Crooked Creek Coal and Railroad company	F. E. Wilson	Webster City	Shaft	Long wall	Fan	Steam	Shipping.
Pleasant Valley Coal company	Jerry Dawson	Fort Dodge	Shaft	Room and pillar.	Fan	Steam	Shipping.
Gleason Coal company	John Gleason	Fort Dodge	Shaft	Room and pillar.	Fan	Steam	Shipping.
McEwan Coal company	Wm. McEwan	Coalville	Shaft	Room and pillar.	Furnace	Steam	Local.
Craig & Dawson Coal company	Wm. Dawson	Kalo	Shaft	Long wall	Fan	Steam	Shipping.
Daily Coal company	Thos. Adamson	Lehigh	Shaft	Long wall	Fan	Steam	Shipping.
Rogers Coal company	E. W. Collins	Fort Dodge	Shaft	Room and pillar	Fan	Steam	Shipping.
Johnson Coal company	A. P. Campbell	Kalo	Shaft	Long wall	Furnace	Horse	Shipping.
Bennett Coal company	S. Bennett	Kalo	Slope	Long wall	Furnace	Horse	Local.
Sam McClure Coal company	Sam McClure	Lehigh	Shaft	Long wall	Fan	Steam	Shipping.
Butler & Rhodes Coal company	D. Rhodes	Coalville					

BOONE COUNTY.

Boone Coal and Mining company—No. 1	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining company—No. 3	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining company—No. 5	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Boone Coal and Mining company—No. 6	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping.
Eagle Coal company	W. J. Conway	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.
Crowe Coal company	Wm. Crowe	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.
The Heaps Coal company	A. Heaps	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.
Risher Coal company	Thos. W. Hughes	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.
Rogers Coal company	Geo. W. Rogers	Incline	Shaft	Long wall	Fan	Steam	Shipping.
Albert Davis Coal company	Albert Davis	Pilot Mound	Shaft	Room and pillar.	Furnace	Horse	Local.
Big Five Coal company	A. L. Carpenter	Moingona	Shaft	Long wall	Steam jet	Horse	Shipping.
W. D. Johnson Coal company	H. H. Canfield	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.
W. H. Bernard Coal company	W. H. Bernard	Madrid	Shaft	Long wall	Furnace	Horse	Local.
Heaps & Crowe Coal company	George Heaps	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping.

JASPER COUNTY.

Colfax Consolidated Coal Company No. 6	W. C. Sheppard, Jr.	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Colfax Consolidated Coal Company No. 7	W. C. Sheppard, Jr.	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Colfax Consolidated Coal Company No. 8	W. C. Sheppard, Jr.	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Minden Coal company	Martin Minden	Calfax	Shaft	Room and pillar	Furnace	Horse	Local.
French Coal company	E. P. French	Newton	Shaft	Room and pillar	Natural	Steam	Local.
Carson Bros. Coal company	A Carson	Newton	Shaft	Room and pillar	Natural	Horse	Local.
Lister Coal company	Alfred Lister	Newton	Shaft	Room and pillar	Furnace	Steam	Local.
Worrick Bros. Coal company	Jas. Worrick	Colfax	Shaft	Room and pillar	Fan	Horse	Shipping.
C. M. Norris Coal company	C. M. Norris	Prairie City	Drift	Room and pillar	Furnace	Horse	Local.
Snooks Bros. Coal company	Thos. Snooks	Newton	Shaft	Room and pillar	Natural	Horse	Local.

GUTHRIE COUNTY.

Robert MacCulloch Coal company	Robert MacCulloch	Stuart	Drift	Long wall	Natural	Horse	Local.
Batschlet & Marchant Coal company	John Marchant	Panora	Shaft	Long wall	Furnace	Horse	Local.
J. W. King Coal company	J. W. King	Bagley	Shaft	Long wall	Fan	Horse	Local.
Murphy & Mallon Coal company	W. F. Murphy	Yale	Shaft	Long wall	Furnace	Horse	Local.
Scott Coal company	W. H. Scott	Yale	Shaft	Long wall	Natural	Horse	Local.
Sipe & Hughes Coal company	J. D. Sipe	Yale	Shaft	Long wall	Furnace	Horse	Local.
Mansell Coal company	John Mansell	Yale	Shaft	Long wall	Fan	Horse	Local.
Reese Coal company	David Reese	Panora	Shaft	Long wall	Furnace	Horse	Local.
Jas. Ritchie & Son Coal company	Jas. Ritchie	Stuart	Shaft	Long wall	Furnace	Horse	Local.
Scott Bros. Coal company	Isaac Scott	Bayard	Shaft	Long wall	Furnace	Horse	Local.
Clipper Coal company	Wm. Marchant	Bagley	Shaft	Long wall	Furnace	Horse	Local.
Greenbrier Coal company	E. E. Cleaveland	Jamaica	Shaft	Long wall	Natural	Horse	Local.

DALLAS COUNTY.

Driscoll Bros. Coal company	Wm. Driscoll	Woodard					
Wm. Knox Coal company	Wm. Knox	Madrid	Slope	Room and pillar		Horse	Local.
Rees Bros. Coal company	W. J. Rees	Madrid	Shaft	Room and pillar	Fan	Steam	Local.
Hutchison Bros. Coal company	W. C. Hutchison	Dawson	Shaft	Room and pillar	Fan	Steam	Shipping.

SCOTT COUNTY.

Sass Bros. Coal company	Wm Sass	Jamestown	Shaft	Room and pillar	Furnace	Horse	Local.
Langwith Coal company	E. T. Longwith	Jamestown	Shaft	Room and pillar	Furnace	Horse	Local.
Long Coal company	Lewis E Long	Jamestown	Shaft	Room and pillar	Furnace	Steam	Local.

GREENE COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Ditchburn Coal company	Robert Ditchburn	Angus	Shaft	Long wall	Fan	Horse	Local.
Buckeye Coal company	M. Feith	Rippey	Shaft	Room and pillar	Natural	Horse	Local.
Goodwin Coal company	Thos. Goodwin	Grand Junction	Shaft	Long wall	Fan	Steam	Shipping.
Willow Grove Coal company	H. A. McElheny	Angus	Shaft	Long wall	Fan	Steam	Local.
Keystone Coal company	Wm. Bennett	Angus	Shaft	Long wall	Furnace	Horse	Local.
Snake Creek Coal company	Geo. Richards	Rippey	Shaft	Room and pillar	Exhaust from pump	Steam	Local.

TABLE No. 1.

Showing number of mines, output of coal, number of miners and other employes in District No. 3, for year ending June 30, 1904.

Name of County.	Number of mines.	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes
Polk	27	966,172	1,547	500	280	2,327
Webster	15	155,323	313	121	47	481
Boone	16	345,472	789	169	112	1,070
Jasper	11	302,599	477	170	62	709
Guthrie	12	29,353	137	11	16	164
Dallas	5	16,586	49	19	8	76
Scott	6	14,983	54	23	5	82
Greene	5	15,898	62	11	7	80
Total	97	1,846,386	3,428	1,024	537	4,989

TABLE No. 2.

Showing number of mines, output of coal, number of miners, and other employes in District No. 3, for year ending June 30, 1905.

Name of County.	Number of miners.	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Polk	30	1,094,521	1,905	566	334	2,805
Webster	11	122,056	233	95	39	367
Boone	15	422,802	766	272	113	1,151
Jasper	12	305,027	454	143	74	671
Guthrie	15	29,416	102	31	17	150
Dallas	5	13,599	43	17	10	70
Scott	4	5,210	38	14	6	58
Greene	6	17,470	74	23	11	108
Total	98	2,010,101	3,615	1,161	604	5,380

TABLE No. 3.

Showing the output of coal of the counties comprising District No. 3 for the past five years.

Counties.	1901	1902	1903	1904	1905
Polk	938,800	981,610	996,573	966,172	1,094,521
Boone	302,800	286,300	288,055	345,472	422,802
Jasper	134,500	153,400	323,312	302,599	305,027
Webster	167,300	132,477	159,990	155,323	122,056
Greene	12,400	16,192	12,711	15 898	17,470
Guthrie	16,750	17,250	16,515	29,355	29,416
Dallas	29,400	34,750	19,990	16,586	13,599
Scott	22,469	28,973	18,280	14,983	5,210

TABLE No. 4.

Showing tonnage in District 3, for past ten years, with number of fatal accidents and number of employes with tonnage per accident, etc.

Year.	Number of fatal accidents.	Tons of coal mined during each year.	Number of employes.	Tons of coal mined per accident.	Number of employes for each accident.
1896	9	1,059,022	3,376	117,699	375
1897	8	1,201,788	3,649	150,223	456
1898	10	1,370,459	3,382	137,045	338
1899	11	1,555,050	3,437	141,368	312
1900	8	1,508,020	3,819	188,502	477
1901	7	1,607,690	3,904	229,670	558
1902	13	1,653,152	3,878	127,166	298
1903	5	1,835,456	3,691	367,091	738
1904	10	1,846,386	4,989	184,638	499
1905	11	2,010,101	5,380	182,736	489

ACCIDENTS.

There were twenty-one fatal and sixty non-fatal accidents during the biennial period, the particulars of which will be found in the details by counties. In canvassing the causes of mine accidents it will be found that the usual story is told; falling slate, premature blast, caught by cage, drivers caught under car, and shotfirers are listed among the killed. Like in all the affairs of life, where any dangerous condition is found, accidents will occur. Men at times expose themselves needlessly to danger, and in very many cases we can see where a "stitch in time saves nine", and with just a little care a death or an injury could have been averted.

Mining rules or mining laws can not prevent such accidents; they are peculiarly a part of man and a feature of the employment. Some men will neglect to put up needed timbers or props, some will use reckless methods in handling powder, and drivers become heedless to all danger and take needless risk. Only a strong guardian could save some men from accidents occurring in our mines.

The mining laws of the State are observed in a satisfactory manner; some of our mine owners are continually instituting plans and ways to make their mines safe and no expense is spared to protect life and provide good ventilation and sanitary conditions.

Fatal accidents in District No. 3, for two years ending June 30, 1905.

Date.	Name of Deceased.	Occupation.	Cause of Death.	Employed by—	County.
July 6, 1903	Guy Weston Parker	Miner	Fall of slate	Keystone Coal company	Polk.
July 23, 1903	Gus Carlson	Miner	Flying coal	Saylor Coal company	Polk.
August 27, 1903	William Thomas	Miner	Fall of slate	Colfax Consolidated Coal company	Jasper.
October 20, 1903	Ernest Foreman	Driver	Fall of slate	Gibson Coal Mining company	Polk.
November 17, 1903	Andrew Anderson	Miner	Fall of slate	W. D. Johnson Coal company	Boone.
November 7, 1903	Charles Holmes	Miner	Fall of coal	Maple Grove Coal company	Polk.
December 11, 1903	George Smith	Superintendent	Fell into sump	Pleasant Valley Coal company	Webster.
December 29, 1903	Hoyt Dunskin	Driver	Run over by car	Saylor Coal company	Polk.
April 27, 1904	Joseph Smith	Miner	Fall of slate	Norwood Coal company	Polk.
June 28, 1904	Harry Gibson	Shotfirer	Flying coal	Colfax Consolidated Coal company	Jasper.
July 22, 1904	James Crowe	Superintendent	Caught by cage	Heaps & Crowe Coal company	Boone.
September 7, 1904	Ed Stuart	Driver	Run over by cars	Saylor Coal company	Polk.
October 6, 1904	Wm. Laidler	Miner	Fall of slate	Ditchburn Coal company	Greene.
October 12, 1904	John W. Logan	Miner	Fall of coal	Saylor Coal company	Polk.
November 17, 1904	L. A. Brown	Miner	Fall of slate	Diamond Joe Coal company	Polk.
November 30, 1904	Peter Johnson	Miner	Fall of slate	Smith-Lowe Coal company	Polk.
January 17, 1905	Samuel Taylor	Miner	Fall of slate	West Riverside Coal company	Polk.
January 18, 1905	John Bacon	Miner	Explosion of powder	Oak Park Fuel company	Polk.
January 18, 1905	Henry Connack	Miner	Fall of slate	Bennett Bros. Coal company	Polk.
February 2, 1905	Thomas Hammond	Driver	Run over by cars	Elko Coal Mining company	Polk.
February 6, 1905	Adam Waitkum	Miner	Fall of slate	Smith-Lowe Coal company	Polk.

Non-fatal accidents in District No. 3, for two years ending June 30, 1905.

Date.	Name.	Occupation.	Character of Injury.	Cause of Accident.	Mine Where Accident Occurred.	County.
July 9, 1903	John Wilding	Miner	Arm broken	Caught in cars	Colfax Consolidated Coal Co.	Jasper.
July 22, 1903	J. T. Jones	Timberman	Finger cut off	Ax fell on hand	Colfax Consolidated Coal Co.	Jasper.
July 28, 1903	Geo. Ewing	Driver	Internally injured	Fall of slate	Crook Creek No. 4	Webster.
September 28, 1903	Jos. Birmingham	Laborer	Skull broken	Fall of slate	Saylor Coal Co.	Polk.
September 29, 1903	Thos. Colgon	Miner	Hip bruised	Fall of slate	Hanlon Mine	Scott.
October, 1903	J. R. Anderson	Miner	Ankle broken	Fall of slate	Enterprise Coal Co.	Polk.
November 11, 1903	Wm. Underwood	Miner	Collar bone broken	Fall of slate	Goodwin Coal Co.	Greene.
November 17, 1903	H. F. Scott	Miner	Back hurt	Fall of slate	Colfax Consolidated Coal Co	Jasper.
November 21, 1903	Jno. Killion	Timberman	Foot mashed	Fall of slate	Boone County Coal company	Boone.
November 21, 1903	Andrew Johnson	Miner	Leg broken	Fall of slate	Boone County Coal company	Boone.
December 8, 1903	Geo. Newcomb	Miner	Finger pinched off	Riding extra	Colfax Consolidated Coal Co	Jasper.
January 14, 1904	Mark Jones	Miner	Broken leg	Fall of slate	Des Moines Coal Co	Polk.
January 18, 1904	B. H. McCarty	Timberman	Hip broken	Fall of timber	Des Moines Coal Co	Polk.
January 20, 1904	John Birmingham	Miner	Leg broken	Fall of slate	W. D. Johnson Mine	Boone.
January 21, 1904	Fred Norwood	Pit foreman	Mashed hips	Fall of slate	Norwood Coal Co.	Polk.
February 4, 1904	W. J. Jackson	Driver	Fingers mashed	Caught in car	West Riverside Coal company	Polk.
February 13, 1904	Geo. Cook	Miner	Rib broken	Fall of slate	Smith-Lowe Coal company	Polk.
February 25. 1904	David Scott	Miner	Leg broken	Fall of slate	Smith-Lowe Coal company	Polk.
Winter, 1903-1904	T. B. Smith	Miner	Leg broken	Fall of slate	Enterprise Coal Co.	Polk.
March 19, 1904	Malone	Miner	Ribs fractured	Fall of coal	Des Moines Coal Co	Polk.
April 27, 1904	Roy Mercer	Miner	Crushed hips	Caught by cars	Des Moines Coal Co	Polk.
May 10, 1904	Chas. Lundeen	Roadman	Leg broken	Fall of Rock	Rogers Coal Co	Boone.

NON-FATAL ACCIDENTS—CONTINUED.

Date.	Name.	Occupation.	Character of Injury.	Cause of Accident.	Mine Where Accident Occurred.	County.
June 28, 1904	Guy Stover	Miner	Bones in foot broken	Fall of slate	Colfax Consolidated Coal Co	Jasper.
July 8, 1904	Dave Budie	Cager	Arm broken	Caught by cage	Colfax Consolidated Coal Co	Jasper.
July 23, 1904	E. H. Ballard	Miner	Arm broken	Fall of slate	Greenbrier Coal Co.	Guthrie.
July 25, 1904	John Sullivan	Driver	Thighs bruised	Falling timbers	Saylor Coal Co.	Polk.
September 8, 1904	Geo. Wisham	Driver	Leg broken	Fall of slate	Smith-Lowe Coal company	Polk.
September 8, 1904	Geo. Rape	Miner	Bruised back	Fall of slate	Coaldale Fuel Co.	Polk.
September 19, 1904	H. DeVan	Driver	Arm broken	Car ran off track	Smith-Lowe Coal company	Polk.
September 21, 1904	John Cotton	Miner	Leg broken	Fall of slate	Center Coal Co.	Polk.
September 28 1904	John Heffron	Miner	Ribs broken	Caught between car and collar overhead	Coaldale Fuel Co.	Polk.
October 31, 1904	Ed. Cocoanut	Shotfirer	Leg broken	Flying coal	Enterprise Coal Co	Polk.
December 1, 1904	Albert Davis.	Miner	Leg broken	Fall of slate	Davis mine	Boone.
December 3, 1904	Joe Bostoletti	Miner	Foot broken	Fall of slate	Colfax Consolidated Coal Co	Jasper.
December 5, 1904	Albert Grandquist	Driver	Ribs broken	Caught between car and timbers	Colfax Consolidated Coal Co	Jasper.
December 6, 1904	Joe Lilly	Miner	Badly burned	Powder explosion	Maple Block Coal company	Polk.
January 21, 1905	Peter Frisk	Miner	Leg broken	Fall of slate	Glenwood Coal Co.	Polk.
January 23, 1905	Chas. Evans	Shotfirer	Cut about head	Flying coal	Enterprise Coal Co	Polk.
January 24, 1905	M. V. Carpenter	Miner	Back hurt	Fall of slate	Smith-Lowe Coal company	Polk.
February 15, 1905	W. Robinson	Driver	Ear cut	Kicked by mule	Norwood Coal Co.	Polk.
February 17, 1905	Jasper Kinney	Miner	Both legs and 3 ribs broken	Flying coal	Keystone Coal Co.	Polk.
February 23, 1905	John Peterson	Miner	Two ribs broken	Fall of slate	Madison Coal Co.	Polk.
February 25, 1905	A. Trevethon	Miner	Four ribs broken	Fall of slate	Colfax Consolidated Coal Co	Polk.
March 2, 1905	N. E. Setz	Miner	Thumb taken off	Fall of slate	Colfax Consolidated Coal Co	Polk.

March	4, 1905	Aug. Storchevich..	Miner	Two fingers taken off	Caught in sheave wheel	Colfax Consolidated Coal Co	Jasper.
March	8, 1905	Chas. Krohn.	Timberman	Back dislocated	Fall of slate	Colfax Consolidated Coal Co	Jasper.
March	10, 1905	Jno. R. Owens	Timberman	Bruised hips	Fall of slate	Des Moines Coal Co.	Polk.
April	12, 1905	Jim Watkins	Miner	Hip dislocated	Fall of slate	Enterprise Coal Co.	Polk.
April	27, 1905	J. B Bird	Miner	Two ribs broken	Fall of slate	Des Moines Coal Co.	Polk.
May	2, 1905	Peter Axner	Timberman	Back dislocated	Fall of slate	Enterprise Coal Co.	Polk.
May	2, 1905	Dominae Bimbi	Miner	Wrist broken	Runaway car	Saylor Coal Co.	Polk.
May	21, 1905	Emmet Ward	Miner	Leg broken	Fall of slate	Norwood Coal Co	Polk.
May	22, 1905	Wm. Murray	Miner	Strained back	Caught between mule and car	Des Moines Coal Co.	Polk.
May	25, 1905	John Ford	Miner	Back injured	Fall of slate	Coaldale Fuel Co.	Polk.
May	27, 1905	Wm. Turner.	Shotfirer	Arm broken	Flying coal	Saylor Coal Co.	Polk.
May	29, 1905	Jacob Walters	Miner	Both legs and one rib broken	Fall of coal	Center Coal Co.	Polk.
June	8, 1905	H. E. Hathaway	Miner	Arm broken	Fall of slate	Oak Park Fuel Co.	Polk.
June	28, 1905	Angelo Biondi	Miner	Four ribs broken	Fall of slate	Saylor Coal Co.	Polk.
June	29, 1905	Robert Holmes	Miner	Hips bruised	Fall of slate	Colfax Consolidated Coal Co	Jasper.
June.	1905	Jacob Walter	Miner	Leg and ribs broken	Fall of coal.	Center Coal Co.	Polk.

FATAL ACCIDENTS IN THE THIRD DISTRICT FOR THE YEAR ENDING JUNE 30, 1904.

GUY WESTON PARKER.

Guy Weston Parker, a miner, in the employ of the Keystone Coal Company of Des Moines, was killed by a fall of slate on the morning of July 6, 1903. Mr. Parker was in his room at the juncture of the fifth south and main entries. When slate fell on him he was standing on the front of the car. The roof had been examined that morning and was considered safe. Charles Moore, pit boss, was near him at the time when he was caught by the falling slate and helped carry him out. A doctor was called and an ambulance secured, and he was taken to his home at 1925 North Washington street. The piece of slate which fell on him was about seven feet long, three feet wide, and would average about nine inches in thickness.

GUS CARLSON.

Gus Carlson, a miner, in the employ of the Saylor Coal Company, was instantly killed in room 10 on the eighth east, on the north side of the Saylor Coal Company's mine, at about 4:30 P. M., July 23, 1903. He was found dead about eighteen feet from the face of his room and directly across his roadway. His limbs were broken and badly crushed by flying coal caused from a shot, evidently fired by himself. There was no fall of slate or any other material about him. He, in company with C. C. Rice and William Wiley, had been firing shots. Each had fired one shot, and Wiley and Rice, not knowing that Carlson intended firing another, had walked out of the entry. At about 6:30 P. M. it was learned that he had been killed, evidently by a second shot fired after Rice and Wiley had gone out.

WILLIAM THOMAS.

William Thomas, a miner, in the employ of the Colfax Consolidated Coal Company, of Colfax, Jasper county, was killed by a fall of slate in mine No. 6, on the 27th day of August, 1903. His left leg was broken above the ankle and the right leg between the knee and ankle, while on his left side three ribs were broken loose from the breast bone and crushed in. He was about seventy years of age. A shot had been put in the entry; the entry was low and he had been warned by R. M. Jones that it was in a dangerous condition. He (Thomas) sounded it and said it was all right, and just then it fell and caught him. The piece that struck him was a feather edge and was not large; would weigh perhaps, two hundred pounds. The accident happened about 10:30 A. M., August 27, 1903, and he died two hours later.

CHARLES HOLMES.

Charles Holmes, a miner, in the employ of the Maple Grove Coal Company, was Killed in mine No. 2 of the above company on November 7, 1903. He was at work in his room at the time and was struck by a fall of coal, which dislocated one hip and injured him internally, from which injuries he died at 7:15 of the same day. He was a practical miner, and had been in the employ of the Maple Grove Coal Company for four years.

ANDREW ANDERSON.

Andrew Anderson, a miner employed by the W. D. Johnson Coal company of Boone county, Iowa, was instantly killed by a section of roof falling on him while he was engaged at work in his room in the above mine. The accident resulting in his death occurred at 10 o'clock on the morning of November 17, 1903. He was sixty years of age, a practical miner and had been in the employ of the above company for eighteen years.

GEORGE SMITH.

On December 11, 1903, at 10 A. M., George Smith, superintendent of the Pleasant Valley Coal company, mine No. 3, at Coalville, Webster county, Iowa, was instantly killed by falling into the sump at the bottom of the shaft, which was full of hot water at the time. He was burned from the waist down. The accident was due entirely to his own work. He had caused the exhaust pipe from the steam pump to be turned into the sump, which heated the water to a boiling heat. This also caused steam on the entry and rendered it impossible to see the sump. In that condition he did not know he was so close to the shaft and accidentally walked into the sump.

ERNEST FOREMAN.

On October 20, 1903, Earnest Foreman, a mule driver, in the employ of the Gibson Coal and Mining Company, No. 4 mine, was fatally injured on the main entry, about 1,500 feet from the main shaft. The accident happened about 9 A. M., and injury consisted in the outer part of the backbone being crushed about one inch in width. This accident was caused by falling slate, and at the time was not thought to be fatal and was so reported to this office; but later Mr. Foreman succumbed to his injuries, dying on November 19, 1903.

JOSEPH SMITH.

Joseph Smith was fatally injured at the Norwood Coal Mine on April 27, 1904, at about 10:45 A. M., by a fall of slate. The accident happened twenty feet inside of the last break through on the third west entry, south side. His back was broken, and he also received other internal injuries. He was immediately removed to the hospital, but succumbed to his injuries a few days later. It is presumed the injured person went to look for work and went below without the knowledge of any one in charge. The company shot examiners go to work about 10:30 A. M., and had called for a cage and injured person got on with them, and started around the mine in search of mine foreman. The injured man was not in the employ of the company.

HOYT DUNSKIN.

Hoyt Dunskin, a driver, employed by the Saylor Coal Company, was fatally injured at 11:20 A. M., on the morning of December 29, 1903. Mr. Dunskin was coming out of the first east entry on the south side with a loaded trip of cars, and in some unknown way he fell under the trip and was instantly killed. This happened opposite room twelve. There was no one present at the time of his death. He was killed on a grade, and the supposition is, that tail chain came unhooked and that he attempted to recouple while cars were in motion. He was found under his trip by dayman. His back was broken and he was internally injured.

HARRY GIBSON.

Harry Gibson, a shotfirer, in the employ of the Colfax Consolidated Coal Company, mine No. 6, Colfax, Iowa, was instantly killed while performing his duties as shotfirer in mine No. 6, between the hours 4 and 6 P. M., June 28, 1904. When accident occurred he was in the first plug entry from the fifth west, about twenty or twenty-five feet from the first plug entry. His death was caused by flying coal from a shot in a break-through near the face of plug entry off fifth west. He had evidently lighted a few shots on the inside entry, and expected to have time to go from there to the outside plug entry and light that shot and get out before the break-through shot would go off, but it seems there was not time enough for him to make the run back and the shot must have caught him while in there. The left side of his head was crushed, arms broken and many bruises and cuts covering the body, so that death must have resulted instantly.

JAMES CROWE.

On July 22, 1904, James Crowe, vice-president and superintendent of the Heaps & Crowe Coal company of Boone, Iowa, was found dead in the sump of the main shaft. He had evidently been caught in some unknown manner between the cage and the side of the shaft and dragged from the bottom to the ground landing; from there his body dropped back into the sump, a distance of 225 feet, where it was found two or three hours later. Coroner J. C. Walker was summoned and decided that an inquest before a jury was unnecessary, as death was caused in a purely accidental manner, and that no blame attached to anyone connected with the mine. Mr. Crowe was one of the well known coal operators of Boone county.

ED STUART.

Ed Stuart, a driver in the employ of the Saylor Coal company, was instantly killed in the mine of the above company on September 7, 1904, by a loaded car passing over him. Mr. Stuart was employed at the mine as a regular mule driver and was coming out of the first east entry on the south side of the mine with a trip of cars at about 3 o'clock on above date when the accident occurred. It can not be determined by what means Mr. Stuart came to be under the cars, as no one witnessed the accident, but it is evident he was killed instantly, as the first car passed over his body, breaking his back and crushing him internally. He was found under the front of the second car a few minutes after the accident occurred by D. W. Roberts, who was coming out of the entry.

ADAM WAITKUM.

Adam Waitkum, a miner in the employ of the Smith-Low Coal Company of Carbondale, Iowa, was fatally injured by a fall of slate which occurred on the afternoon of February 6, 1905. He was in room 2, third north entry, when fall of slate occurred, crushing him internally. The accident occurred in mine No. 4. Mr. Waitkum had been in the employ of the company about four months.

THOMAS HAMMOND.

On February 2, 1905, a fatal accident occurred to Thos. Hammond, a mule driver in the employ of the Elko Coal and Mining Company of Des Moines, Iowa. Mr. Hammond was on the top of a hill coming out to the shaft bottom with a loaded trip of cars, when he was evidently kicked by the mule under the loaded cars. His leg was broken and he was hurt internally. The cause of the accident is only known by his own statement, which was that the mule kicked him. Accident happened February 2, 1905, at 3:30 P. M., and he died two days late. He was twenty-seven years old, and had been in the employ of the company for eight weeks.

JOHN BACON.

John Bacon was fatally injured in the mine of the Oak Park Fuel Company of Des Moines, Iowa, on January 18. 1905.. Mr. Bacon was working with his father in the first east entry on the above date, and while in the act of pouring powder from a keg into a coffee pot that was being utilized for a powder can, it is supposed that a spark fell from his lamp, which ignited a full keg of powder, burning him severely, both externally and internally. He was at once removed to the hospital where he died twenty-four hours later.

HENRY CONNACK.

Henry Connack, a miner in the employ of the Bennett Bros. Coal company of Des Moines, Iowa, was fatally injured at 9:30 A.M. on January 18, 1905, by a fall of slate in above mine. He was in the first south entry, forty-five or fifty feet from the face, when a fall of slate occurred, crushing him internally, from which injuries he died two days later. Timbermen were at work timbering up place six or eight feet from where slate fell when the accident occurred. He was twenty-six years old and had been in the employ of the company about three months.

SAMUEL TAYLOR.

Samuel Taylor, a miner, in the employ of the West Riverside Coal Company, was killed in this mine on the 17th of January, 1905. While in the act of mining off a shot in the face of his room, a piece of draw slate, weighing about one ton, fell on him, crushing him to the floor and injuring him internally, from which iujuries he died the following day. Mr. Taylor was warned to stay from under the slate, but it seems he was indifferent to the danger, receiving injuries as above stated.

L. A. BROWN.

L. A. Brown, a miner in the employ of the Diamond Joe Coal Company of Runnells, Iowa, was instantly killed at 11 A. M. November 17, 1904. He was in room 7, inside of fourth east entry on main north when fall of slate occurred. The fall of slate was caused by two unknown slips in the roof coming together in a V shape. He was taken from under the slate by H. H. Innis, J. B. Williams and H. H. Davis, fellow miners. It took them fifteen or twenty minutes to remove slate from off of body as the slate would weigh between two and three tons. Mr. Brown was but seventeen years old. He had been in the employ of the company for three years.

PETER JOHNSON.

Peter Johnson, a miner in the employ of the Smith-Lowe Coal company of Carbondale, Iowa, was fatally injured in mine No. 3 of said company on the morning of November 30, 1904. He was at work in room 2, off of room 19, sixth east entry, when fall of slate occurred, crushing him around chest and shoulders. After he was taken from under the slate he was able to walk to the street car and return to his home, but died from his injuries two days later. He was an old experienced miner and had been in the employ of the company for three and one-half years.

WILLIAM LAIDLER.

William Laidler, a miner, in the employ of the Ditchburn Coal Company of Angus, Iowa, was fatally injured in the mine of the above company about 3:30 P. M. October 6, 1904, from which injuries he died two days later. He was drawing a pillar. The roof had made one fall and had broken off. He holed through the pillar and left a stump. As cars were plentiful that afternoon he thought he could get a car or two off the stump, and in so doing a chunk of draw slate fell on him, breaking his back and injuring him about the head and face. He was an old time experienced mine.

JOHN W. LOGAN.

John W. Logan, a miner in the employ of the Saylor Coal Company was fatally injured at said mine on the afternoon of October 12, 1904. Accident occurred in room 3, ninth east north entry. He was undermining his shot when coal fell on him crushing his skull. He was found a few minutes later by Robert Heathcote, Luke Wilfan and Frank Wilfan. He was not dead when taken from under the coal, but died in about three minutes after being removed.

FOLLOWING IS THE LIST OF NON-FATAL ACCIDENTS WHICH OCCURRED IN THE THIRD DISTRICT OF IOWA FOR THE TWO YEARS ENDING JUNE 30, 1905.

July 9, 1903, John Wilding, arm broken coupling cars at Colfax, Consolidated Coal Company, Colfax, Jasper county.

July 22, 1903, J. T. Jones, timberman, finger cut off by ax while timbering at Colfax, Consolidated Coal Company, Jasper county.

July 28, 1903, George Ewing, driver, internally injured by fall of slate at Crooked Creek Mine No. 4, Webster county.

September 28, 1903, Joseph Birmingham, laborer, skull broken by fall of slate at Saylor coal mine, Polk county.

September 29, 1903, Thomas Colgon, miner, hip bruised and ribs broken by fall of slate at Hanlon coal mine, Scott county.

October, 1903, J. R. Anderson, miner, ankle broken by fall of slate at Enterprise mine, Polk county.

November 11, 1903, William Underwood, miner, collar bone broken and ankle dislocated by fall of slate in mine of the Goodwin Coal Company, Grand Junction, Greene county.

November 17, 1903, H. F. Scott, miner, back hurt by fall of slate at Colfax, Consolidated Coal Company's mine, Jasper county.

November 21, 1903, John Killion, timberman, foot fractured by fall of slate in mine of Boone County Coal Company.

November 21, 1903, Andrew Johnson, miner, leg broken by fall of slate at Boone County Coal Company, Boone County.

December 8, 1903, George Newcomb, miner, finger pinched off riding extras at mine of Colfax Consolidated Coal Company.

January 14, 1904, Mark Jones, miner, bone of leg fractured by fall of slate at mine of Des Moines Coal Company, Polk county.

January 18, 1904, B. H. McCarty, timberman, hip broken by fall of timber at mine of Des Moines Coal Company, Polk county.

January 20, 1904, John Birmingham, miner, leg broken by fall of slate in the W. D. Johnson mine, Boone county.

January 21, 1904, Fred Norwood, pit foreman, back dislocated and mashed through hips by fall of slate at Norwood mine, Polk county.

February 4, 1904, W. J. Jackson, driver, two fingers mashed off by car in West Riverside mine, Polk county.

February 13, 1904, George Cook, miner, rib broken by fall of slate in Smith-Lowe mine, Carbondale, Polk county.

February 25, 1904, David Scott, miner, leg broken by fall of slate in Smith-Lowe mine, Carbondale, Polk county.

Winter 1903-4, T. B. Smith, miner, leg broken by fall of slate in mine of Enterprise Coal Company, Polk county.

March 19, 1904, Malone, miner, shoulder and ribs fractured by fall of coal at mine of Des Moines Coal Company, Polk county.

April 27, 1904, Roy Mercer, miner, crushed about hips by cars at mine of Des Moines Coal Company, Polk county.

May 10, 1904, Charles Lundeen, roadman, leg broken by fall of rock at mine of Rogers Coal Company, Boone county.

June 28, 1904, Guy Stover, miner, one bone broken in left foot at mine of Colfax Consolidated Coal Company, Colfax, Jasper county.

July 8, 1904, Dave Budie, cager, arm broken by cage at mine of Colfax Consolidated Coal Company, Colfax, Jasper county.

July 23, 1904, E. H. Ballard, miner, arm broken by fall of slate in mine of Greenbrier Coal Company, Jamaica, Guthrie county.

July 25, 1904, John Sullivan, driver, thighs bruised by falling timbers in mine of Saylor Coal Company, Polk county.

September 3, 1904, George Wisham, driver, leg broken by fall of slate in mine of Smith-Lowe Coal Company, Polk county.

September 8, 1904, George Rupe, miner, badly bruised back and legs by fall of slate in mine of Coaldale Fuel Company, Polk county.

September 19, 1904, H. DeVan, driver, arm broken by car running off track at mine of Smith-Lowe Coal Company, Polk county.

September 21, 1904, John Cotton, miner, leg broken by fall of slate in mine of Center Coal Company, Polk county.

September 23, 1904, John Heffron, miner, two ribs broken by being caught between top of car and collar overhead in mine of Coaldale Fuel Company, Polk county.

October 31, 1904, Ed Cocoanut, miner and shotfirer, leg broken by flying coal, mine of Enterprise Coal Company, Polk county.

December 1, 1904, Albert Davis, miner, leg broken by fall of slate in mine of Albert Davis, Pilot Mound, Boone county.

December 3, 1904, Joe Bostoletti, miner, bone of foot broken by fall of slate, Colfax Consolidated Coal Company, Jasper county.

December 5, 1904, Albert Grandquist, driver, back dislocated and four ribs broken, caught between cars and timber, Colfax Consolidated Coal Company, Colfax, Jasper county.

December 6, 1904, Joe Lilly, miner, badly burned about face and back by powder explosion in mine of the Maple Block Coal Company, Polk county.

January 21, 1905, Peter Frisk, miner, leg broken by fall of slate in mine of the Glenwood Coal Company, Polk county.

January 23, 1905, Charles Evans, shotfirer, cut about head, got lost in room after lighting shot. Enterprise Coal Company.

January 24, 1905, M. V. Carpenter, miner, back slightly hurt by fall of slate in mine of Smith-Lowe Coal Company, Polk county.

February 15, 1905, W. Robinson, driver, ear partly kicked off by mule in mine of Norwood Coal Company, Polk county.

February 17, 1905, Jasper Kinney, miner, both legs and three ribs broken by flying coal from explosion in mine of the Keystone Coal Company, Polk county.

February 23, 1905, John Peterson, miner, two ribs and one ankle broken by fall of slate in mine of Madison Coal Company, Polk county.

February 25, 1905, A. Trevethon, miner, four ribs broken by fall of slate in Colfax Consolidated Coal Company's mine, Colfax.

March 2, 1905, N. E. Setz, miner, thumb taken off at first joint by fall of slate, Colfax Consolidated Coal Company, Jasper county.

March 4, 1905, Aug. Storchevich, miner, two fingets taken off in sheave wheel, Colfax Consolidated Coal Company, Jasper county.

March 8, 1905, Charles Krohn, driver and timberman, back dislocated and hurt about lungs and kidneys, fall of slate, Colfax Consolidated Coal Company, Colfax, Jasper county.

March 10, 1905, John R. Owens, timberman, squeezed through hips and back by fall of slate, Des Moines Coal Company, Polk county.

April 12, 1905, Jim Watkins, miner, hip dislocated by fall of slate in mine of Enterprise Coal Company, Polk county.

April 27, 1905, J. B. Bird, miner, two ribs broken by fall of slate at mine of Des Moines Coal Company.

May 2, 1905, Peter Axuer, timberman, back dislocated by fall of slate in mine of Enterprise Coal Company, Polk county.

May 2, 1905, Dominac Bimbi, miner, wrist broken by car breaking loose in mine of Saylor Coal Company.

May 21, 1905, Emmet Ward, miner, leg broken by fall of slate in mine of Norwood Coal Company, Polk county.

May 22, 1905, William Murray, driver, strained back and hips, was caught between mule and car in mine of Des Moines Coal Company.

May 25, 1905, John Ford, miner, back injured by fall of slate in mine of Coaldale Fuel Company, Polk county.

May 27, 1905, Wm. Turner, shotfirer and shot examiner, arm broken by flying coal while firing shots at mine of Saylor Coal Company, Polk county.

May 29, 1905, Jacob Walters, miner, both legs and one rib broken by falling coal at mine of Center Coal Mining Company, Polk county.

June 3, 1905, H. E. Hathaway, miner, arm broken by fall of slate in mine of Oak Park Fuel Company, Polk county.

June 28, 1905, Angelo Biondi, miner, four ribs broken by fall of slate at mine of Saylor Coal Company, Polk county.

June 29, 1905, Robert Holmes, miner, Bruised through hips and shoulders by fall of slate at mine of Colfax Consolidated Coal Company, Colfax, Jasper county.

June, 1905, Jacob Watter, miner, leg and ribs broken by falling coal at mine of Center Coal Mining Company, Polk county.

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THIRTEENTH REPORT

OF THE

STATE MINE INSPECTORS

FOR THE

Year Ending June 30, 1906

TO THE

GOVERNOR OF THE STATE OF IOWA

PRINTED BY ORDER OF THE GENERAL ASSEMBLY

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1906

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STATE MINE INSPECTORS.

District No. 1, JOHN VERNER, Chariton.
District No. 2, JAMES A. CAMPBELL, Ottumwa.
District No. 3, EDWARD SWEENEY, Des Moines.

BOARD OF EXAMINERS.

FOR MINE INSPECTORS, MINE FOREMEN AND HOISTING ENGINEERS.

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H. BOOTH, Knoxville.

STATISTICS RELATING TO COAL MINING IN IOWA FOR THE YEAR ENDING JUNE 30, 1906.

The gradual increase in the annual coal production by the Iowa mines has been maintained in the last year. This increase, however, was not uniform in all the coal producing counties of the state. Ten counties, Appanoose, Monroe, Wayne, Taylor, Page, Adams, Warren, Jasper, Polk and Greene show an increase in their coal output last year over the year preceding. Thirteen counties, Jefferson, VanBuren, Davis, Wapello, Keokuk, Mahaska, Marion, Lucas, Guthrie, Dallas, Boone, Webster and Scott produced less coal last year than in the year ending June 30, 1905. Monroe county made the greatest gain, 326,650 tons. Wapello showed the greatest loss 157,325 tons.

The total number of persons employed in and about the mines during the last year was somewhat less than during the preceding year, while the number of inside employes, other than miners, increased slightly; there were 582 less miners and 259 less outside employes. The amount of coal produced per miner last year showed an average increase of slightly more than eight percent over the average output per miner during the preceding year.

Notwithstanding the fact that all the mines in Iowa were idle during last April on account of the miners and operators failing to come to an agreement at their meeting in Indianapolis, most of the more important mines of the state were worked a greater number of days last year than in the preceding year. In this respect the mines of Monroe county made the most favorable showing.

As the miners and operators of Iowa have entered into a working agreement to run until April 1, 1908, coal mining in this state will not be interferred with injuriously by strikers or lockouts during the time covered by this agreement. From present indications it appears that the coal industry of Iowa will continue to remain in fairly satisfactory condition during the coming year.

The following tables give the coal producing counties of the state, the number of mines, the coal output and the number of persons employed in and about the mines.

Number of mines.	County.	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number employed.	Number.
23	Monroe	2,443,687	2,585	1,001	289	3,875	1
29	Polk	1,266,224	2,057	777	334	3,168	2
94	Appanoose	1,056,655	2,603	640	389	3,632	3
20	Mahaska	570,178	864	254	142	1,260	4
13	Jasper	333,307	620	184	47	851	5
12	Marion	326,994	529	145	55	729	6
12	Boone	276,505	625	176	74	875	7
10	Wapello	210,704	322	60	44	426	8
5	Lucas	151,432	273	90	37	400	9
10	Wayne	121,288	281	92	46	419	10
14	Webster	112,223	251	92	36	379	11
12	Adams	21,817	148	15	18	181	12
6	Warren	21,787	40	6	8	54	13
12	Guthrie	20,730	97	13	16	126	14
7	Greene	20,605	70	17	10	97	15
9	Taylor	19,505	89	24	13	126	16
5	Page	17,275	86	15	7	108	17
5	Dallas	9,888	37	13	8	58	18
3	Keokuk	8,473	13	5	4	22	19
4	Van Buren	7,345	19	4	4	27	20
3	Scott	860	6	6	0	12	21
309	Total	7,017,485	11,615	3,629	1,581	16,825	

Number of mines in each district, their coal output, number of miners and other employes for year ending June 30, 1906.

District.	Number of mines.	Tons of coal of all grades produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Number 1	149	2,648,519	4,909	1,458	708	7,075
Number 2	65	2,328,624	2,943	893	348	4,184
Number 3	95	2,040,342	3,763	1,278	525	5,566
Total	309	7,017,485	11,615	3,629	1,581	16,825

Fatal and Serious Accidents.

The number of fatalities in and about the mines of the state during the last year was greater than in any preceding year, with the exception of the year 1902. Of the thirty-seven fatal accidents last year, thirty-six occurred in the mines and one outside. Twenty-five of them occurred at the working face. No lives were lost on account of the absence of or any defect in the safety appliances required by law.

The number of serious accidents reported last year also exceeded the number of serious accidents of the preceding year. During the year ending June 30, 1905, 100 serious accidents occurred in and about the mines of Iowa, last year the number was 116.

A summary of these accidents, their causes, etc., will be found in the following tables:

Causes of fatal mine accidents in Iowa during the year ending June 30, 1906, and counties in which accidents occurred.

Cause.	Polk.	Boone.	Mahaska.	Monroe.	Marion.	Wapello.	Appanoose.	Wayne.	Total.
Falls of slate, rock, coal, etc	4	1	3	10	1	....	4	1	24
Flying coal	2	....	....	..	....	1	....	..	3
Run over by car	1	....	....	4	....	....	....	....	5
Premature explosion	....	....	1	2	....	..	....	....	3
Crushed between cars	....	....	....	....	1	....	....	....	1
Fell in hot water vat	....	....	1	....	....	....	....	....	1
Total	7	1	5	16	2	1	4	1	37

Causes of serious mine accidents in Iowa during year ending June 30 1906, and county in which accident occurred.

County.	Polk.	Guthrie.	Jasper.	Webster.	Boone.	Greene.	Marion.	Monroe.	Mahaska.	Wapello.	Appanoose.	Lucas.	Wayne.	Adams.	Total.
Falls of roof, coal, bat, rock, etc	20	1	....	....	1	1	1	21	3	2	10	1	....	1	62
Hurt by cars	9	....	....	....	....	....	....	11	1	....	2	1	....	....	24
Caught by cage	2	....	....	....	....	....	....	2	1	....	1	....	....	....	6
Flying coal from shot	1	....	....	1	1	1	1	6	....	....	....	....	....	....	11
Tail rope, tail chain, etc	2	....	....	....	....	....	....	2	....	....	....	....	....	....	4
Kicked by mule	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Miscellaneous	2	....	....	....	....	....	1	2	1	....	2	....	....	....	8
Total	37	1	....	1	2	2	3	44	6	2	15	2	....	1	116

Fatal and serious accidents in the mines of the state during the year ending June 30, 1906, with relation to coal produced and number of employes.

Districts.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for each Accident.		Number of Employes.	Number of Employes for each Accident.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
District No. 1	16	44	2,648,519	165,532	60,194	7,075	442	161
District No. 2	13	31	2,328,624	179,125	75,117	4,184	322	135
District No. 3	8	41	2,040,342	255,043	49,764	5,566	696	136
Total.	37	116	7,017,485	189,661	63,081	16,825	455	145

Table showing fatal mine accidents in Iowa for the last thirteen years, their relation to coal tonnage and employes.

Year.	Number of accidents.	Tons of coal produced.	Tons of coal per accident.	Number of employes.	Fatality rate per 1000 employes.
1894	19	3,777,393	198,810	10,258	1.9
1895	20	3,195,836	159,792	10,992	1.8
1896	22	3,525,490	160,254	11,451	2.
1897	21	3,799,734	190,464	11,678	1.8
1898	26	4,397,722	169,143	10,550	2 5
1899	20	4,949,310	247,466	11,029	1.8
1900	29	5,117,285	176,458	13,041	2.2
1901	27	5,441,863	201,550	13,175	2.
1902	55	5,514,206	100,258	13,002	4.2
1903	21	6,185,734	294,559	13 192	1.6
1904	31	6,214,379	200,464	16,315	1.9
1905	24	6,806,011	283,584	17,624	1.4
1906	37	7,017,485	189,661	16,825	2.2

ANNUAL REPORT OF THE

FIRST DISTRICT

COUNTIES COMPRISING THE FIRST DISTRICT:

APPANOOSE,	MONROE (part),
LUCAS,	WAYNE,
TAYLOR,	PAGE,
ADAMS.	

JOHN VERNER, INSPECTOR,
Chariton, Iowa.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir—I have the honor to submit to you herewith the report of the First Inspection District, covering the year ending June 30, 1906.

Very respectfully,

JOHN VERNER,

Inspector First District.

Report of First District.

More coal was produced in the year ending June 30, 1906, by the mines in the first district than during any previous year since mining commenced in Iowa, notwithstanding the fact that all the mines in the district were idle during the month of March and work was not resumed in full in a large number of them until late in May. Lucas county excepted, all counties show a gain in coal tonnage over the year ending June 30, 1905. Appanoose county made the largest gain, 161,175 tons, Monroe county gained 131,187 tons, Wayne county 16,415 tons, Taylor county 3,854 tons, Page county 112 tons and Adams 2,240 tons. The total gain in these counties amounts to 314,883 tons. Compared with the preceding year the coal output of Lucas county in the year ending June 30, 1906, shows a loss of 13,824 tons. The net increase in the output of the mines in the district during the year ending June 30, 1906, over the preceding year amounts to 301,159 tons. The number of mines in active operation last year was no greater than the year before and the gain in tonnage was due partly to the greater number of days the mines were worked and partly to improved conditions in working and handling the coal.

The indications are that during the coming year the coal output of the district will not be increased.

During the year ending June 30, 1906, 214 mines were inspected and eight scales were tested.

The following table gives in condensed form the number of mines in the counties comprising the district; their coal output and the number of persons employed in the coal industry:

Number of mines in operation in each county, their coal output, number of miners and other employes in District No. 1, for the year ending June 30, 1906.

County.	Number of railroad mines.	Number of mines without railroad connection.	Total number of mines.	Tons of coal of all grades produced	Number of miners.	Number of other inside employes	Number of outside employes	Total number of employes.
Appanoose	65	29	94	1,056,655	2,603	640	389	3,632
Monroe (part)	11	2	13	1,260,544	1,429	582	198	2,209
Lucas	2	3	5	151,432	273	90	37	400
Wayne	2	8	10	121,288	281	92	46	419
Taylor	3	6	9	19,505	89	24	13	126
Page	....	5	5	17,278	86	15	7	108
Adams	....	13	13	21,817	148	15	18	181
Total	83	66	149	2,648,519	4,909	1,458	708	7,075

List of corporations, firms and individuals operating mines in the first district, their postoffice address, number of mines operated by them in the district and shipping facilities, if any.

Corporation, Firm or Individual.	Address.	Number of mines.	Shipping Facilities.
Scandinavian Coal company....	Centerville ..	2	Keokuk & Western.
AppanooseCoal & Fuel company	Diamond	3	Keokuk & Western and Chicago, Milwaukee & St. Paul
Walnut Block Coal company....	Centerville ..	1	Keokuk & Western.
Phoenix Coal company	Brazil.....	1	Keokuk & Western.
Centerville Block Coal company	Centerville ..	7	Keokuk & Western. Chicago, Rock Island & Pacific and Iowa Central.
Tipton Co-operative Coal Co....	Brazil.....	1	Keokuk & Western.
Peacock Coal company	Brazil.....	1	Keokuk & Western.
Oriental Coal company	Centerville ..	2	Keokuk & Western.
Perfection Block Cool company	Centerville ..	1	Keokuk & Western.
Sunshine Coal company	Centerville ..	1	Keokuk & Western.
Anchor Coal company	Centerville ..	3	Keokuk & Western and Chicago, Rock Island and Pacific.
Dewey Coal company.....	Centerville ..	1	Keokuk & Western.
Cincinnati Coal & Mining Co...	Cincinnati. ..	1	Chicago, Burlington & Kansas City.
Consolidated Block Coal Co....	Cincinnati....	1	Chicago, Burlington & Kansas City.
Mendota Coal & Mining Co	Cincinnati .	2	Chicago, Burlington & Kansas City.
Thistle Coal company.	Cincinnati...	3	Chicago, Burlington & Kansas City.
Exline Coal company.....	Exline	2	Chicago, Burlington & Kansas City.
Iowa Block Coal company.	Exline.....	1	Chicago, Burlington & Kansas City.
Numa Block Coal company.....	Seymour. ...	3	Chicago, RockIsland & Pacific & Chicago, Milwaukee & St Paul.
Prairie Block Coal company	Centerville ..	1	Chicago, RockIsland & Pacific
Center Coal company.	Centerville ..	1	Chicago, RockIsland & Pacific.
Manufacturers Coal & Coke Co.	Centerville .	2	Chicago, RockIsland & Pacific & Burlington.
Consumers Coal company.	Cedar Rapids	1	Chicago, Milwaukee & St. Paul.
Big Jo. Coal company.....	Harkes	1	Chicago, Milwaukee & St. Paul.
F. H. Juckett Coal company....	Cedar Rapids	1	Chicago, Milwaukee & St. Paul
Peerless Coal company.....	Mystic	6	Chicago, Milwaukee & St. Paul.
Egypt Coal company.....	Mystic	1	Chicago, Milwaukee & St. Paul
Artic Coal company.....	Mystic	1	Chicago, Milwaukee & St. Paul
Acken Coal company	Mystic	2	Chicago, Milwaukee & St. Paul
Mystic Coal company.....	Mystic	3	Chicago, Milwaukee & St. Paul.
Diamond Block Coal company..	Mystic	3	Chicago, Milwaukee & St. Paul
Cedar Rapids Fuel company	Cedar Rapids	1	Chicago, Milwaukee & St. Paul.
Beggs Coal company..	Mystic	1	Chicago, Milwaukee & St. Paul.
Elgin & Barrett Coal company	Mystic	1	Chicago, Milwaukee & St. Paul
Orr Bros. Coal company	Mystic	1	Chicago, Milwaukee & St. Paul
Star Coal company	Rathbun	1	Chicago, Milwaukee & St. Paul.
Unity Block Coal Company.....	Darbyville..	1	Chicago, Milwaukee & St. Paul.

orporation, Firm or Individual.	Address.	Number of mines.	Shipping Facilities.
stic Coal Company	Cincinnati	1	Chicago, Burlington & Kansas City.
rong Block Coal Company	Cincinnati	1	Chicago, Burlington & Kansas City.
Oak Coal Company	Exline	1	Chicago, Burlington & Kansas City.
t Grove Coal Company	Numa	1	Chicago, Rock Island & Pacific.
Guinn	Dean	1	
ns Coal Company	Centerville	1	
Coal Company	Centerville	1	
Oak Coal Company	Centerville	1	
or Coal Company	Centerville	1	
Coal Company	Centerville	1	
Coal Company	Centerville	1	
Valley Coal Company	Centerville	1	
Schrum	Centerville	1	
Koontz	Centerville	1	
n & Seddon	Mystic	1	
llo Coal Company	Hiteman	2	Chicago, Burlington & Quincy.
y Hollow Coal Company	Avery	2	Chicago, Burlington & Quincy.
Coal Company	Albia	1	Chicago, Burlington & Quincy.
Ash Coal Company	Avery	1	Chicago, Burlington & Quincy.
ps Fuel Company	Ottumwa	1	Chicago, Milwaukee & St. Paul.
breast Fuel Co., of Illinois	Ottumwa	2	Chicago, Milwaukee & St. Paul and Chicago, Burling- & Quincy.
ng Coal Company	Hocking	2	Iowa Central.
l Fuel Company	Chariton	1	
son Coal Company	Sewel	1	
ye	Promise City	1	
Hayhurst	Promise City	1	
Jared	Promise City	1	
nson & Pace	New Market	1	Chicago, Burlington & Quincy.
bell Coal Company	New Market	2	Chicago, Burlington & Quincy.
Browning	New Market	1	Chicago, Burlington & Quincy.
ster	New Market	1	Chicago, Burlington & Quincy.
Rogers	Villisca	1	
ton & Company	Clarinda	1	
Berry Coal Company	Clarinda	1	
oore	Clarinda	1	
Coal Comyany	Coin	1	
Henton	Corning	1	
mdor	Carbon	1	
nes	Carbon	1	
uth	Carbon	1	
Wild	Carbon	1	
s & Barker	Carbon	1	
xon	Carbon	1	
y	Nodaway	1	
n & Daugherty	Nodaway	1	
Hathaway	Nodaway	1	
Demirjean	Briscoe	1	

APPANOOSE COUNTY.

Last years number of mines in Appanoose county, railroad and local, was ninety-four. Sixty-five of these mines are connected with the railroads running through the county. Twenty-eight mines are connected with the Chicago, Milwaukee and Saint Paul railroad, twenty-seven with the Burlington, one with the Iowa Central and nine with the Chicago, Rock Island & Pacific. The remaining twenty-nine mines have no railroad connections and are generally operated in a small way to supply home demand, although some ship part of their output.

The majority of the shipping mines were operated a greater number of days last year than the year preceding. The number of working days at the larger mines averaged 212 for the year.

During the year ending June 30, 1905 the mines of Appanoose county produced 895,480 tons of coal, during the year ending June 30, 1906 the county's coal output increased to 1,056,655 tons, a gain of 161,175 tons or 18 per cent for last year. The largest gain in tonnage was made by the mines connected with the Rock Island railway 27 per cent, while the mines along the Milwaukee showed a gain of 20 per cent and the mines on the Burlington system 10 per cent. The mines connected with the Rock Island also showed the best average output per mine in the county. The average output per mine on the Rock Island was nearly 27,000 tons for the year, while the average per mine on the Milwaukee and the Burlington system was less than 15,000 tons.

Two new mines were opened during the year, and one small mine, which had been abondoned for some years was reopened.

The Sunshine Coal Company opened a mine three miles west of Centerville. The coal is reached by shaft 7x14 feet, 130 feet deep. Hoisting is done by gin at present, but steam power will be substituted later on. The mine has shipping faculties over the Keokuk and Western railroad. Work is now going on to open the mine.

The Armstrong Block Coal Company completed sinking a shaft, 135 feet deep, west of Cincinnati. Work is being pushed to get the mine in operation at an early date. Steam power will be used. The sinking of the air and escape shaft has been decided on. The mine will be connected with the Chicago, Burlington & Kansas City railroad.

Nearly all the mines in Appanoose county as far as safety of the persons working in them is concerned, are in fairly satisfactory condition. The situation with regard to their proper ventilation is not so satisfactory. It is true that considerable improvement was made in the last year in this respect, especially in the larger mines in the county, yet in some mines the air volume provided was found inadequate, more markedly so during the summer and fall months. In nearly all the cases, where the ventilation was found insufficient, furnaces were used for ventilating purposes. Furnaces, such as are provided in Appanoose county and connected with shallow shafts are per-

missible and they give satisfactory results, while the mine is new and of little extent, but they soon become inadequate and a source of much trouble, as the working area of the mine increases. The limit of usefulness of furnace ventilation has been reached in several Appanoose county mines and it will soon become necessary, if these mines are to be worked successfully, that other and better means of ventilating them be provided.

Summary of Conditions of the Appanoose County Mines.

Scandinavian Coal Company No 2 located at Plano. Considerable trouble was experienced on account of the bulging and breaking of the shaft timbers, due to the pressure of a thick stratum of clay. The shafts were relined with extra heavy timber through this bed of clay. The timber lining eight inches in thickness, will probably be sufficient to resist the pressure on the shafts. The mine is well equipped and in good condition.

Appanoose Coal & Fuel Company No. 3. A slope mine located west of Brazil. Very little work was done at this mine lately.

It is the intention to connect this mine with No. 22, located south, and operated by the same company.

Walnut Block Coal Company located at Brazil. The mine is operated on a small scale and does little work during the summer. It is indifferently managed and but few men are employed.

Phoenix Coal Company. Mine located at Brazil and in fair condition. The top works have been remodeled, the slope opening has been changed and improved.

Centerville Block Coal Company No. 5. A slope mine located at Brazil. Considerable outside improvements made to facilitate the more rapid handling on top of the mine's coal output. The furnace shaft, 100 feet in depth, has been lined with brick. The ventilation of the mine is improved. Its coal output last year exceeded that of any other mine connected wtth the Burlington system in Appanoose county.

Tipton Co-operative Coal Company. A slope mine located at Brazil. The mine is operated in a small scale and will probably be abandoned after next winter

Peacock Coal Company. A slope mine located at Brazil. The ventilation of this mine has been much improved by the sinking of an air shaft at the head of the workings. The mine is in good condition.

Oriental Coal Company No. 1. A slope mine located southeast of Brazil. Some outside improvements have been made. The mine is in fair condition.

Oriental Coal Company No. 2. A small slope mine, operated only during the winter months. Condition fair.

Perfection Block Coal Company. A shaft mine south of Brazil. The mine is in poor condition. It has recently been bought by the Perfection Block Coal Company and will be improved as rapidly as possible.

Centerville Block Coal Company No. 3. A shaft mine located south-west of Centerville. The mine is in better condition than it has been for some years. A new opening has been made into mine No. 8 located to the east, bringing about a decided improvement in the mine's ventilation, besides

affording a better road to reach the escape shaft. The mine is advantageously located with regard to shipping faculties, and notwithstanding the fact that it has been in operation for a good many years and the workings are a considerable distance from the hoisting shaft, arrangements can now easily be made by which the coal output can be materially increased.

Anchor Coal Company No. 1. A shaft mine located south of Centerville. The management was repeatedly urged during the past year to provide better facilities to ventilate the north workings of the mine more satisfactorily. Up to the present nothing has been done in this direction. The work of giving better ventilation to the north workings cannot be delayed much longer if further operations are to be carried on in that part of the mine.

Scandinavian Coal Company No. 1. A shaft mine located at Centerville. The mine is in fair condition.

Dewey Coal Company. A shaft mine located east of Centerville. Considerable difficulty was experienced in airing the first east entry satisfactorily. The difficulty has been overcome, however, and the mine is now in fair condition in every respect.

Cincinnati Coal and Mining Company. A slope mine located south-west of Cincinnati. It has been in poor condition for some time, is now worked under a lease and the present operators have been notified to improve the condition of the mine.

Consolidated Block Coal Company. A slope mine located south-west of Cincinnati. It is not in satisfactory condition, but the management has promised to improve the mine as rapidly as possible.

The Albert mine, located west of Cincinnati and operated by the Mendota Coal & Mining Company is in fair condition.

The Appanoose mine, located at Cincinnati, also operated by the Mendota Coal & Mining Company, has been idle all summer. It is in fair condition.

Domestic Coal Company. A shaft mine located north of Cincinnati. An air and escape shaft was sunk this summer. The mine is in fair condition.

Thistle Coal Company No. 1. A shaft mine east of Cincinnati. The ventilation has been deficient, but was improved by cleaning up the air roads. The hoisting shaft will be re-timbered and new cages will be provided.

Thistle Coal Company No. 2. A shaft mine east of Cincinnati. A fault appearing on the east side of the mine has seriously interferred with its development during the last year. The mine is in fair condition.

Thistle Coal Company No. 3. A shaft mine east of Cincinnati. It was not operated last year, but work in it will shortly be resumed. An additional boiler has been added to its equipment.

Exline Coal Company No. 1. A shaft mine located west of Exline. It is in fair condition.

Exline Coal Company. A shaft mine located to the east of No. 1 and connected with the latter. At present both mines are ventilated by No. 1 fan, but it is the intention of the management to place a fan at No. 2 mine in the near future.

Iowa Block Coal Company. A shaft mine located at Exline. A fan was erected and the mine is in fair condition.

White Oak Coal Company. A shaft mine north of Exline, largely operated for local trade, was provided with an air and escape shaft.

The Royal mine east of Exline was not operated last year.

Centerville Block Coal Company No. 2. A shaft mine located at Numa. Tail rope haulage has been installed. Mine in fairly satisfactory condition.

Numa Block Coal Company No. 1. A shaft mine located near Numa. Tha expectation of better ventilation on account of the re-location of the fan at the air shaft, expressed in last report, was fully realized. The mine is now satisfactorily ventilated and in good condition.

Prairie Block Coal Company. A shaft mine located 4½ miles south of Centerville, A fan has been erected and the mine is in satisfactory condition.

Anchor Coal Company No. 3. A shaft mine located at Shawville. Ventilation is fair. New track scales has been ordered and will be placed as soon as they arrive.

Anchor Coal Company, No. 2. A shaft mine located north of No. 3. The ventilation of the south side of the mine was deficient and improvement is needed in that direction. Otherwise the mine is in fair condition.

Centerville Block Coal Company No. 1 & 10. Shaft mines located east of Centerville. These mines are connected and ventilated by a fan placed at No. 10 air shaft. Work is now going on in mine No. 10, and it will probably be completed within a few months, that will improve the ventilation in both mines. The mines are in good condition. Extensive improvements are under way to remodel the tipple at mine No. 1.

Centerville Block Coal Company No. 9. A Shaft mine located west of Centerville. It is in fair condition.

Center Coal Company. A shaft mine located south of Centerville. The air and escape shaft was completed. A ten-foot fan has been added recently to the mine's equipments. The mine is laid out well and is in good condition.

Manufacturers Coal & Coke Company No. 30. A shaft mine south of Centerville. The mine has been idle a considerable part of last year, operation, however, has been resumed. The mine is in fair condition.

Manufacturers Coal & Coke Company No. 10. A slope mine with openings, air and escape shaft, located in Putnam county, Missouri. The mine workings are now in Iowa territory. The air and escape shaft was retimbered and equipped in conformity with the Iowa law. The mine is in fair condition.

Walnut Grove Coal Company. A shaft located north of Numa. The mine has no railroad connection, yet most of its coal output is shipped. Equipment fair. Ventilation somewhat deficient, but efforts have been made to improve the mine in that respect.

Consumers Coal Company. A shaft mine located at Jerome. Since the completion of the improvements of the air shaft and fan early last year; the ventilation of the mine has been entirely satisfactory. A good stairway was built in the escape compartment of the airshaft. The mine is in good condition.

Big Jo Coal Company. A shaft mine located at Harkes in fairly satisfactory condition.

F. H. Juckett Coal Company. A shaft mine located northeast of Harkes. The mine was idle for several months this summer and has only recently resumed operation.

Appanoose Coal & Fuel Company No. 21. A slope mine located at Diamond. Little has been done to improve the mine and it is still in unsatisfactory condition.

Appanoose Coal & Fuel Company No. 22. A shaft mine located at Diamond. It is a new mine and in fair condition.

Peerless Coal Company No. 4. A shaft mine west of Mystic. The hoisting shaft has been re-timbered. Ventilation deficient. It will probably become necessary to sink an air shaft at the head of the workings.

Peerless Coal Company No. 5. A shaft mine west of Mystic. It is in fair condition.

Egypt Coal Company. A drift mine west of Mystic. Some difficulty about ventilating the mine properly. The air shaft was enlarged and re-timbered. This is one of the mines in Appanoose county where furnace ventilation is failing to give satisfactory results.

Peerless Coal Company No. 1. A drift mine at Mystic. It is in fair condition.

Acken Coal Company No. 1. A slope mine located west of Mystic. The slope was in bad condition. Part of it has been re-timbered and the remainder will be made secure.

Acken Coal Company No. 2. A shaft mine connected with No. 1. Both mines can be acceptably ventilated by the fan placed at No 2 air shaft.

Peerless Coal Company No. 2. Shaft mine located west of Mystic. This mine is in fair condition.

Mystic Coal Company No. 1. A slope mine located west of Mystic. Had been abandoned for some years, but was re-opened last year. On account of a fault the extent of the working will be small and only a few men are employed.

Mystic Coal Company No. 2. A shaft mine west of Mystic. The mine is in fair condition.

Mystic Coal Company No. 3. A slope mine west of No 2 Ventilation unsatisfactory. Work is now going on to connect this mine with No. 2, and then ventilate both mines by the fan placed at No. 2 air shaft. The carrying out of the project will not detract from the proper ventilation of No. 2 and will materially improve conditions in No. 3.

Diamond Block Coal Company No. 29. A shaft mine located at Mystic. The mine is in fair condition.

Peerless Coal Company No. 6. A drift mine at Mystic. The mine is of considerable extent and as the furnace shaft is located near its western boundary, it becomes a difficult matter to ventilate the mine acceptably. A change in the mode of ventilating this mine will be necessary in the near future.

Peerless Coal Company No. 3. A slope mine located east of No. 6. Very little work was done in the mine last year. The slope caved in early last spring and is in such condition that it will not pay to re-open it. The coal from this mine will be brought to the surface through another opening.

Diamond Block Coal Company No. 12. A slope mine located east of Mystic. The mine is in fair condition.

Beggs Coal Company. A shaft mine east of Mystic. Condition unsatisfactory. Only a few men are employed. Before the mine can be developed to advantage, a shaft must be sunk north of the right-of-way of the Milwaukee railroad and connected with the workings.

Elgin & Barrett Coal Company. A slope mine located east of Mystic. The operators have had much difficulty in opening this mine, as they had to reach their coal lease through the old workings of the Iowa Block mine abandoned some years ago.

Orr Brothers Coal Company. A shaft mine east of Mystic. The mine is in fair condition.

Diamond Block Coal Company No. 5. A shaft mine located at Clarkdale. The mine is in good condition.

Star Coal Company. A shaft mine located at Rathbun. This is one of the best longwall mines in Appanoose county and is in good condition.

Unity Block Coal Company. A slope mine located at Darbyville. Natural drawbacks on the east and an old mine on the west retarded the development of the mine last year. Ventilation was deficient. The greatest difficulties, however, have been overcome and the mine will soon be in satisfactory condition.

It can be said of the smaller local mines that their equipments complied with the requirements of the mining laws and that generally they were kept in safe and fairly satisfactory condition.

MINES IN APPANOOSE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Scandinavian Coal company		Plano	K. & W.	Shaft	Room and pillar	Steam	Fan.
Appanoose Coal and Fuel company	3	West of Brazil	K. & W.	Slope	Long wall	Elect'y.	Furnace
Walnut Block Coal company		Brazil	K. & W.	Drift.	Long wall	Horse	Furnace.
Phœnix Coal company		Brazil	K. & W.	Drift.	Long wall	Steam	Furnace.
Centerville Block Coal company	5	Brazil	K. & W.	Slope	Long wall	Steam	Furnace.
Tipton Co-Operative Coal company		Brazil	K. & W.	Drift.	Long wall	Horse	Furnace.
Peacock Coal company		Brazil	K. & W.	Drift.	Long wall	Horse	Furnace.
Oriental Coal company	1	South of Brazil	K. & W.	Slope	Long wall	Steam	Furnace.
Oriental Coal company	2	South of Brazil	K. & W.	Slope	Long wall	Steam	Furnace.
Perfection Block Coal company		1 mile southeast of Brazil	K. & W.	Shaft	Long wall	Steam	Fan.
Sunshine Coal company		3 miles west of Centerville	K. & W.	Shaft	Room and pillar	Horse	Jet.
Centerville Block Coal company	3	West of Centerville	K. & W. and Iowa Cent'l	Shaft	Room and pillar	Steam	Fan.
Anchor Coal company	1	Centerville	K. & W.	Shaft	Long wall.	Steam	Fan.
Scandinavian Coal company	1	Centerville	K. & W.	Shaft	Room and pillar	Steam	Fan.
Dewey Coal company.		1½ miles southeast of Centerville	K. & W.	Shaft	Room and pillar	Steam	Fan.
Cincinnati Coal and Mining company		2 miles southwest of Cincinnati	C. B. & K. C.	Slope	Long wall	Horse	Furnace.
Consolidated Block Coal company		1½ miles southwest of Cincinnati	C. B. & K. C.	Slope	Long wall	Horse	Furnace.
Mendota Coal and Mining company	2	West of Cincinnati	C. B. & K. C.	Shaft	Long wall.	Steam	Fan.
Mendota Coal and Mining company	1	Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan.
Thistle Coal company	3	Southeast of Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan.
Thistle Coal company	1	1 mile east of Cincinnati	C. B. & K. C.	Shaft	Long wall.	Steam	Fan.
Thistle Coal company	2	1½ mile east of Cincinnati	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan.
Exline Coal company	1	West of Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan.
Exline Coal company	2	West of Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Jet
Iowa Block Coal company		Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Jet
Royal Coal company		Northeast of Exline	C. B. & K. C.	Slope	Long wall.	Steam	Furnace.
Centerville Block Coal company	9	West of Centerville	Iowa Cent'l.	Shaft	Room and pillar	Steam	Fan.
Centerville Block Coal company	2	Numa	C., R. I. & P.	Shaft	Long wall.	Steam	Fan.
Numa Block Coal Company	1	Numa	C., R. I. & P.	Shaft	Long wall.	Steam	Fan.
Prairie Block Coal company		4 miles south of Centerville	C., R. I. & P.	Shaft	Long wall.	Steam	Jet.
Anchor Coal company	3	3 miles south of Centerville	C., R. I. & P.	Shaft	Long wall.	Steam	Fan
Anchor Coal company	2	2 miles south of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan.
Center Coal company	....	South of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Jet.
Centerville Block Coal company	1	East of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan
Centerville Block Coal company	10	East of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan.

Consumers Coal company		Jerome	C.,M.& St.P.	Shaft	Long wall	Steam	Fan.
Big Jo Coal company		1¾ mile east of Jerome	C.,M.& St.P.	Shaft	Long wall	Steam	Fan.
Armstrong Block Coal company		West of Cincinnati		Shaft	Room and pillar	Steam	Jet.
F. H Juckett Coal company.		3 miles southwest of Mystic	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Appanoose Coal and Fuel company	21	Diamond	C. M. & St. P	Slope	Longwall	Steam	Furnace
Appanoose Coal and Fuel company	22	Diamond	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Peerless Coal company	4	West of Mystic	C. M. & St. P	Shaft	Longwall	Horse	Furnace
Peerless Coal company	5	West of Mystic	C.M.& St. P	Shaft	Longwall	Steam	Furnace
Egypt Coal company		West of Mystic	C. M. & St. P	Slope	Longwall	Steam	Furnace
Peerless Coal company		Mystic	C. M. & St. P	Drift	Longwall	Horse	Furnace
Artic coal company.		Mystic	C. M. & St. P	Drift	Longwall	Horse	Furnace
Acken Coal company	1	West of Mystic	C. M. & St. P	Slope	Longwall	Steam	Fan.
Acken Coal company	2	West of Mystic	C. M. & St. P	Shaft	Longwall	Horse	Fan.
Peerless Coal company		West of Mystic	C. M. & St. P	Shaft	Longwall	Steam	Jet.
Mystic Coal company	2	West of Mystic	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Mystic Coal company	1	West of Mystic	C. M. & St. P	Shaft	Longwall	Mule	Furnace
Mystic Coal company	3	West of Mystic	C. M. & St. P	Slope	Longwall	Horse	Furnace
Diamond Block Coal company	29	Mystic	C. M. & St. P	Slope	Longwall	Steam	Fan.
Cedar Rapids Fuel company.		Mystic	C. M. & St. P	Shaft	Longwall	Horse	Furnace
Peerless Coal company	6	Mystic	C. M. & St. P	Drift	Longwall	Steam	Furnace
Peerless Coal company	3	Mystic	C. M. & St. P	Drift	Longwall	Horse	Furnace
Diamond Block Coal company	12	Mystic	C. M. & St. P	Drift	Longwall	Horse	Furnace
Beggs Coal company		1¼ mile east of Mystic	C. M. & St. P	Slope	Longwall	Horse	Furnace
Elgin & Barrett Coal company		1½ mile east of Mystic	C. M. & St. P	Slope	Longwall	Steam	Furnace
Orr Bros. Coal company.		1½ mile east of Mystic	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Diamond Block Coal company	5	Clarkdale	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Star Coal company		Rathbun	C. M. & St. P	Shaft	Longwall	Steam	Fan.
Unity Block Coal company		Darbyville	C. M. & St. P	Slope	Longwall	Steam	Furnace
Manufacturers Coal & Coke company.	30	South of Centerville	K. & W. and C. R. I. & P	Shaft	Room and pillar	Steam	Fan.
H. H. Parker		Livingston		Shaft	Room and pillar	Horse	Furnace
Superior Coal company		South of Jerome		Shaft	Longwall	Horse	Furnace
Domestic Coal company		Cincinnati		Shaft	Room and pillar	Horse	Furnace
White Oak Coal company		North of Exline		Shaft	Room and pillar	Horse	Furnace
Ira A. Guinn		Coal City		Drift	Room and pillar	Horse	Furnace
Walnut Grove Coal company		North of Numa		Shaft	Longwall	Horse	Furnace
J. R. Wright		South of Centerville		Shaft	Room and pillar	Horse.	Furnace
J. Sears		South of Centerville		Shaft	Room and pillar	Horse.	Furnace
Wm. Smith		South of Centerville		Slope	Room and pillar	Horse.	Furnace
Citizens Coal company		Centerville		Shaft	Room and pillar	Horse.	Furnace
Happy Coal company		Centerville		Shaft	Room and pillar	Horse	Furnace
White Oak Coal company		Centerville		Shaft	Room and pillar	Horse.	Furnace
Monitor Coal company		Centerville		Shaft	Room and pillar	Horse	Furnace

APPANOOSE COUNTY- CONTINUED.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection if Any.	Kind of opening	System of Working.	Power used.	Means of ventilation.
Star Coal company.		Centerville		Shaft	Room and pillar	Horse	Furnace.
Trio Coal company		North of Centerville		Shaft	Room and pillar	Horse	Furnace.
Rock Valley Coal company.		Northeast of Centerville		Shaft	Room and pillar	Horse	Furnace.
John Schrum		North of Centerville		Shaft	Room and pillar	Horse	Furnace.
John Koontz		North of Centerville		Shaft	Room and pillar	Horse	Furnace.
Wilson & Seddon.		Mystic.		Shaft	Long wall	Horse	Furnace.
Centerville Block Coal company	8	Centerville.		Shaft	Room and pillar	Horse	Fan.
Manufacturers Coal & Coke company	10	Coal City	I. & St. L.	Slope	Room and pillar	Steam	Fan.

MONROE COUNTY. (PART)

Considering the fact that no new mines were opened in the part of Monroe County included in this district, and that three mines were closed during the last year, the increase in last year's coal production of 131,187 ons over the preceding year is very gratifying. The gain was largely due to the greater steadiness of work in the principal mines of the county. During last year these mines averaged 247½ working days, while in the preceding year their average was only 215 days. For the year ending June 30, 1905 the average yearly production of coal (mine run) per miner employed in the railroad mines of the county was 738 tons, while last year the average yearly production per miner was increased to 905 tons.

Three mines were abandoned last year. The Excelsior Coal Company mine was closed last September, No. 4 mine of the Smoky Hollow Coal Company and No. 1 mine of the Hocking Coal Company were abandoned early in 1906. The Whitebreast Fuel Company at Hilton will be operated a few months longer. While it is probable that several new mines will be opened in the county the coming year; yet the loss in tonnage due to the closing of the above mines will make it very doubtful that a further increase in the county's coal production can be obtained from the remaining mines next year, unless market conditions are extremely favorable.

Summary of conditions of the mines in the county.

Smoky Hollow Coal Company. No. 7. A slope mine, located about four miles south-east of Hynes. Considerable development work was done in the last year and its coal output will show a material increase during the coming year. The mine is in good condition.

Smoky Hollow Company. Mine No. 6. A slope mine, located south-east of No. 7. The mine is well cared for, fairly ventilated and its general condition is good.

Wapello Coal Co. Mine No. 3. A shaft mine located west of Hiteman. Haulage on the south side of the mine was materially improved by the installation of a first motion tail rope engine and the making of a cut-off, doing away with two turns in the haulage road, besides shortening the haul. Incidentally the making of the cut-off permitted an improvement in the ventilation of the south side. The mine is kept in good condition.

Wapello Coal Co. Mine No. 4. A shaft located about three miles north-west of Hiteman. This mine produced more coal last year than any other mine in the district. It is in good condition.

Phillips Fuel Co. Mine No 6. A shaft mine located near Foster. The ventilation of this mine was recently improved and further improvements in this direction are under way. The mine is in fairly satisfactory condition.

Whitebreast Fuel Co. of Illinois. Mine No. 10. A shaft mine located at Hilton. On account of unfavorable market conditions and for other reasons, this mine will soon be abandoned. It has been in operation about 5 years and is one of the best equipped mines in the State.

Hocking Coal Co. Mine No. 2 A shaft mine located east of Hocking. The ventilation of the extreme east workings somewhat deficient. Improvement work in that direction is under way. Otherwise the mine is in fair condition.

Hocking Coal Co. Mine No. 3. A shaft mine located east of No. 2. It is well equipped and is being rapidly developed. During the coming year it will show a gain in coal output over last year. The mine is in good condition in every respect.

Star Coal Co. A shaft mine located northwest of Albia. Connected with the C. B. & Q. railroad by tram track. The fan has been remodeled and other improvements were made to better the ventilation of the mine. The mine is now in satisfactory condition.

White Ash Coal Co. A slope mine located south of Avery. The mine has no railroad connection, but ships part of its output during the fall and winter. It is not extensively worked and only a few men are employed. It is in satisfactory condition.

MINES IN MONROE COUNTY (PART) THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working	Power used.	Means of ventilation.
Wapello Coal company	3	1 mile west of Hiteman	C B & Q	Shaft	Room and pillar	Steam	Fan.
Wapello Coal company	4	3 miles northwest of Hiteman	C B & Q	Shaft	Room and pillar	Steam	Fan.
Smoky Hollow Coal company	6	4 miles southeast of Hynes	C B & Q	Slope	Room and pillar	Steam	Fan.
Smoky Hollow Coal company	7	4 miles southeast of Hynes	C. B. & Q	Slope	Room and pillar	Steam	Fan.
Phillips Fuel company	6	West of Foster	C. M.& St.P	Shaft	Room and pillar	Steam	Fan.
Whitebreast Fuel company	10	Hilton	C. M.& St.P	Shaft	Room and pillar	Steam	Fan.
Hocking Coal company	2	Southeast of Hocking	Iowa Cent	Shaft	Room and pillar	Steam	Fan.
Hocking Coal company	3	2½ miles south of Albia	Iowa Cent	Shaft	Room and pillar	Steam	Fan.
Star Coal company	....	Northwest of Albia	...	Shaft	Room and pillar	Steam	Fan.
White Ash Coal company	....	South of Avery	....	Slope	Room and pillar	Steam	Fan.

LUCAS COUNTY.

This county is the only county showing a decrease in coal output last year, and it is more than probable that a further decline in that respect will take place the coming year. This unfavorable showing must not be taken as an indication that the coal resources of the county are failing. Large tracts of prospected coal lands have been acquired in this county in recent years by mining corporations and they are ready for development as soon as suitable shipping facilities and markets are provided.

The principal mine in the county is located at Cleveland and operated by the Whitebreast Fuel Company of Illinois. The hoisting shaft is 321 feet deep. The mine is in fair condition.

The Big Hill Fuel Company has re-opened its mine at Lucas. The workings are to the north of the hoisting shaft and are at present of small extent. The mine is in fair condition.

The Inland Fuel Company is operating its mine located northeast of Chariton in a small way. The mine will become one of the most productive mines in the State as soon as railroad connections are provided. The mine is in good condition.

MINES IN LUCAS COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Whitebreast Fuel company	4	Cleveland	C. B. & Q.	Shaft	Room and pillar	Steam	Fan.
Big Hill Fuel company		Lucas	C. B. & Q.	Shaft	Room and pillar	Steam	Fan.
Inland Fuel company		3½ miles northeast of Chariton		Shaft	Room and pillar	Steam	Fan.
Skidmore Bros		Northeast of Lucas		Shaft	Long wall	Horse	Furnace.

WAYNE COUNTY.

The coal output of Wayne county is at present produced by ten mines, two of them having shipping faculties. The Big Jim mine, connected with the C. M. & St. P. railroad and operated by the Numa Block Coal Company, produced more coal during the last year than any other mine in the Appanoose-Wayne field. The hoisting shaft of this mine is 202 feet deep. The mine is well ventilated and in good condition. The Sunshine mine, connected with the Rock Island railroad and operated by the Numa Block Coal Company was maintained in fairly acceptable condition last year. A larger hoisting engine was erected this summer. The small local mines are in fairly satisfactory condition.

MINES IN WAYNE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Numa Block Coal company	2	1 mile east of Seymour	C.,M. & St. P	Shaft.	Longwall	Steam	Fan
Numa Block Coal company	3	Seymour	C., R. I. & P.	Shaft.	Longwall	Steam	Fan
Anderson Coal company	....	North of Sewal	.....	Shaft.	Longwall	Horse	Furnace
Sam Walker	....	4 miles southwest of Seymour.	.....	Shaft.	Longwall.	Steam	Furnace
E. A. Sipes	...	4 miles south of Confidence.	.....	Shaft.	Longwall.	Steam	Furnace
A. H. Hayhurst	....	3¼ miles south of Confidence	.....	Shaft.	Longwall.	Horse	Furnace
John Hayhurst		South of Confidence	.....	Shaft.	Longwall	Horse	Furnace
L. Frye	...	South of Confidence	.....	Shaft.	Longwall	Steam	Fan
O. W. Jared	....	South of Confidence	.....	Shaft.	Longwall.	Horse	Furnace

TAYLOR COUNTY.

The principal mines in Taylor county are located near New Market and three of these have switches off the Burlington road. The coal vein is about 16 inches thick, it is reached by shafts and worked longwall. The roof overlying the coal is good and accidents to persons employed under-ground are rare, none of a serious nature having occurred last year. Hoisting is done by horse power and the hoisting apparatus of the different mines has been kept in satisfactory condition. Little difficulty was experienced in ventilating the mines properly.

MINES IN TAYLOR COUNTY, THEIR LOCATION, ETC.

Firm or Operator.	Mine number	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Tomlinson & Pace	....	East of New Market	C. B & Q	Shaft	Long wall	Horse	Furnace.
Campbell Coal Co	1	East of New Market	C. B & Q.	Shaft	Long wall	Horse	Furnace.
Campbell Coal Co	2	East of New Market		Shaft	Long wall	Horse	Furnace.
Wm. Browning		East of New Market	C B. & Q	Shaft	Long wall	Horse	Furnace.
N Easter	....	2 miles east of New Market		Shaft	Long wall	Horse	Furnace.
H. Ankeny	....	6 miles north of New Market.		Shaft	Long wall	Horse	
L. Ankeny		6 miles north of New Market		Shaft	Long wall	Horse.	
F. Heller	..	6 miles north of New Market.		Shaft	Long wall	Horse.	
W. E. Rogers		Henshaw		Shaft	Long wall	Horse.	

PAGE COUNTY.

The coal output of Page county last year amounted to 17,278 tons, a slight increase over the preceding year. At present there are five mines in operation in the county, four of these have been working for some years and one, that of the Coin Coal Company located at Coin, has been recently opened. Steam power for hoisting is used at the mine of the Johnston Coal Company and also at the new mine at Coin.

All the mines were kept in satisfactory condition last year, their equipments complied with the requirements of the law and the mine ventilation was generally fair.

No accidents to persons employed in and about the mines of Page county occurred during last year.

MINES IN PAGE COUNTY, THEIR LOCATION, ETC.

Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
Johnston & Co	....	2 miles west of Clarinda	.....	Shaft	Longwall	Steam	Furnace
Van Arsdol & Woods	....	West of Clarinda	.....	Shaft	Longwall	Horse	Furnace
J. W. Berry Coal company	1	2 miles southeast of Clarinda	.....	Shaft	Longwall	Horse	Furnace
J. S. Moore	....	2½ miles southwest of Clarinda	.....	Shaft	Longwall	Horse	Furnace
Coin Coal company	....	Coin	.....	Shaft	Longwall	Steam	Jet.

ADAMS COUNTY.

The coal production of Adams county last year amounted to 21,817 tons, an increase of 2,240 tons over the preceding year. At present thirteen mines are operated, all of them small. Most of the coal produced in the county comes from the mines of the vicinity of Carbon.

The coal seam averages about sixteen inches in thickness. It is reached by shallow shafts and worked longwall. Mining conditions favor the safe working of the mines, and accidents of serious character are rare. The equipments are adequate to the needs of the mines. Mine ventilation is generally fair.

MINES IN ADAMS COUNTY, THEIR LOCATION, ETC.

Firm or Operator.	Mine number.	Location of Mine.	Railroad Connection, if Any.	Kind of opening.	System of Working.	Power used.	Means of ventilation.
J. M. Henton	....	Eureka	.....	Shaft	Longwall	Horse..	Furnace
Ed Amdor	....	North of Carbon	.....	Shaft	Longwall	Horse..	Furnace
M. Jones	....	Carbon	.....	Shaft	Longwall	Horse..	Furnace
J. F. Ruth	....	Carbon	.....	Shaft	Longwall	Horse..	Furnace
J. F. Wild	2	Carbon	.....	Shaft	Longwall	Horse..	Furnace
Collins & Barker	....	Carbon	.....	Shaft	Longwall	Horse..	Furnace
C. Dixon	....	Carbon	.....	Shaft	Longwall	Horse.,	Furnace
Herm Day	....	West of Carbon	.....	Shaft	Longwall	Horse..	Furnace
Eclipse Coal company	...	Brisco	.....	Shaft	Longwall	Horse..	Furnace
Mason & Daugherty	...	Northwest of Nodaway	.....	Shaft	Longwall	Horse..	Furnace
R. N. Hathaway	...	West of Carbon	.....	Shaft	Longwall	Horse..	Furnace

ACCIDENTS.

The number of fatal and serious accidents occurring in and about the mines of the district during the last year is far in excess of the number of like accidents occurring in any one year since the organization of the district. The record for the year ending June 30, 1906, shows 16 fatal and 44 serious accidents. Of the former three were caused by cars, 11 were due to falls of slate, rock or coal and 2 were caused by the premature explosion of a shot. No fatal accident, in fact no accident of any kind, was caused by the absence or defect of any safety appliances the law prescribes. Sixty-two per cent of the fatal accidents occurred at the working face.

Sixty-one per cent of the serious accidents were due to falls of slate, rock or coal.

Fatal Accidents in District No. 1, July 1, 1905—June 30, 1906.

Date.	Name of Deceased.	Occupation	Cause of Death.	Employed by—	County.
1905					
July 17	James McDonald	Driver.	Runaway car	Hocking Coal Co	Monroe.
July 17	S. Johnson	Miner.	Fall of slate	Wapello Coal Co	Monroe.
August 5	Joseph White	Timberman's helper	Fall of slate	Whitebreast Fuel Co.	Monroe.
August 23	J. Scavich.	Miner..	Fall of rock	Orr Bros. Coal Co	Appanoose.
September 20	James Ambury	Miner..	Fall of coal.	Numa Block Coal Co.	Wayne.
October 9	A. Tadjevich	Miner..	Fall of slate	Whitebreast Fuel Co	Monroe.
October 20	F. McCory.	Miner..	Fall of rock	Appanoose Coal and Fuel Co.	Appanoose.
November 7	F. Caldwell	Driver.	Caught between mule and car	Smoky Hollow Coal Co	Monroe.
December 14	James Wiley	Miner..	Fall of slate	Hocking Coal Co	Monroe.
December 30	P. Martin	Miner..	Fall of bat	Unity Block Coal Co.	Appanoose.
1906					
January 13	A. Sheppard	Miner..	Premature explosion	Hocking Coal Co	Monroe.
January 13	W. Sheppard.	Miner..	Premature explosion	Hocking Coal Co	Monroe.
February 15	P. O'Hara	Driver.	Fall of slate	Star Coal Co	Monroe.
March 1	E. Mitchell	Driver.	Caught between car and rib	Hocking Coal Co	Monroe.
March 16	L. Cormany	Miner..	Fall of rock	Consolidated Block Coal Co	Appanoose.
June 18	O. Ribbing	Miner..	Fall of slate	Wapello Coal Co	Monroe.

Serious Accidents in District No. 1, July 1, 1905—June 30, 1906.

Date.		Name of Injured.	Occupation.	Character of Injury.	Cause of Injury.	Employed by—	County.
1905							
July	5	J. C. Thomas	Timberman	Foot badly bruised	Fall of slate	Wapello Coal Co.	Monroe.
August	4	Geo Roberts	Cager	Ribs broken	Caught under cage	Wapello Coal Co	Monroe.
August	12	N. Frost	Miner	Leg broken	Fall of coal	Acken Coal Co	Appanoose.
August	23	F Stice	Driver	Shoulder dislocated	Caught by tail chain	Smoky Hollow Coal Co.	Monroe.
August	24	L. Lee	Miner	Leg broken	Fall of coal	Acken Coal Co	Appanoose.
August	25	S. Wilson	Driver	Skull fractured	Struck by post	Smoky Hollow Coal Co	Monroe.
August	28	A. J. Swanson	Trip rider	Back injured	Fall of slate	Smoky Hollow Coal Co.	Monroe.
September	15	F. Clay	Miner	Ankle broken	Fall of coal	Iowa Block Coal Co	Appanoose.
September	28	J Allison	Miner	Arm broken	Fall of slate	Wapello Coal Co.	Monroe.
October	23	C. Lingren	Miner	Head and side cut	Str'k by tail rope trip	Smoky Hollow Coal Co	Monroe.
October	24	E Canfield	Laborer	Back and hips injured	Fall of slate	Consumers Coal Co	Appanoose.
October	28	N. Nelson	Driver	Leg broken	Run over by car	Whitebreast Fuel Co	Lucas.
November	7	A. L. Van Pelt	Blacksmith	Leg broken	Pit car fell on him	Smoky Hollow Coal Co.	Monroe.
November	16	G. W. Divers	Miner	Foot broken	Fall of coal	Whitebreast Fuel Co.	Lucas.
November	18	C. Conklin	Driver	Collar bone broken	Caught between cars	Consolidated Block Coal Co	Appanoose.
November	25	J. Ogilvie	Miner	Hip disloc't'd, arm brok'n	Fall of coal	Mystic Coal Co	Appanoose.
December	1	M. Ridener	Shotfirer	Face burnt	Explosion	Hocking Coal Co	Monroe.
December	7	F. Burns	Miner	Leg broken	Fall of coal	Diamond Block Coal Co.	Appanoose.
December	8	H Morrell	Miner	Leg broken	Fall of slate	Wapello Coal Co	Monroe.
December	13	G Hartman	Laborer	Finger cut off	Struck by wedge	Wapello Coal Co	Monroe.
December	15	Wm. Stirts	Laborer	Leg broken	Fall of rock	Tipton Co-operative Coal Co	Appanoose.
1905							
December	17	C Doctorman	Cager	Leg broken	Car thro'n from cage	Mystic Coal Co	Appanoose.
December	19	J. Nelson	Miner	Foot crushed	Fall of coal	Star Coal Co	Appanoose.
December	24	J. Gillespie	Top cager	Nose broken	Struck by cage	Mendota Coal & Mining Co	Appanoose.
December	22	R. Wilson	Mine owner	Back injured, ribs broke	Fall of brushing	Wilson & Seddon	Appanoose.

1906 January	1	J. E. Mason	Miner	Collar bone broken	Fall of slate	Mason & Daugherty	Adams.
January	8	W. Garrington	Miner	Ribs broken	Fall of coal	Smoky Hollow Coal Co	Monroe.
January	12	W. Bitterman	Miner	Collar bone broken	Fall of coal	Smoky Hollow Coal Co	Monroe.
January	24	A Johnson	Miner	Leg broken	Fall of bat	Egypt Coal Co	Appanoose.
January	26	C Miller	Outside labor'r	Ankle broken	Caught between cars	Smoky Hollow Coal Co	Monroe.
February	7	F. Quilhan	Miner	Back and leg injured	Fall of slate	Smoky Hollow Coal Co	Monroe.
Februa y	10	I. H. Keller	Driver	Severely bruised	Fall of rock	Numa Block Coal Co	Wayne.
March	5	J. Delvesco	Miner	B'k bruised internal inj	Fall of slate	Smoky Hollow Coal Co	Monroe.
March	9	O Eck	Driver	Ankle broken, head cut.	Run over by car	Smoky Hollow Coal Co	Monroe.
March	12	W. Green	M'ch runner	Three fingers cut off.	Caught in mining machine	Peerless Coal Co	Appanoose.
March	17	L. Brown	Trapper	Ankle broken	Run over by car	Phillips Fuel Co	Monroe.
March	20	W. F. Lomax	Miner	Ribs ahd bones in hand broken	Fall of slate	Smoky Hollow Coal Co	Monroe.
March	24	G Rowley	Miner	Leg broken	Fall of coal	Hocking Coal Co	Monroe
M y	24	Geo. Long	Miner	Face and hand burnt	Premature explosion	Hocking Coal Co	Monroe.
May	24	Geo. Stocks	Miner	Leg broken	Premature explosion	Hocking Coal Co	Monroe
May	25	P. B. Jenkins	Timberman	Leg and ribs broken	Fall of slate	Smoky Hollow Coal Co	Monroe.
June	6	T. Polic	Miner	Arm broken	Fall of coal	Diamond Block Coal Co	Appanoose.
June	8	E. Valentine	Driver	Leg broken	Fall of slate	Wapello Coal Co	Monroe.
June	13	O Olson	Miner	Leg broken	Fall of slate	Phillips Fuel Co	Monroe.

Fatal and serious accidents in District No. 1, July 1, 1905, to June 30, 1906, with relation to coal produced and number of employes.

County.	Number of Accidents.		Number of Tons of Coal Produced.	Tons of Coal Produced for each Accident.		Number of Employes.	Number of Employes for each Accident.	
	Fatal.	Serious.		Fatal.	Serious.		Fatal.	Serious.
Appanoose.	4	15	1,0 6,655	264,164	70,444	2,632	908	242
Monroe (part)..	11	25	1,260,544	114,595	50,422	2,209	201	88
Lucas.	...	2	151,432	...	75,716	400	.....	200
Wayne..	1	1	121,288	121,288	121,288	419	419	419
Taylor.....	....	...	19,505	.....	.....	126		
Page	.....	.. ...	17.278	.....	.. ...	108		
Adams..... .. .	.....	1	21,817	.....	21,817	181	.....	181
Total	16	44	2,648,519	165,532	60,194	7,075	442	161

NATIONAL BUREAU OF MINES

In the last report expression was given to the need of national assistance in the prevention of mine accidents. In order to bring the matter before Congress, Hon. John F. Lacey, Representative of the Sixth Iowa Congressional district introduced a bill in congress providing for the creation of a national bureau of mines. The bill was distinctly favorable to the mining interests of this country, and for the benefit of the general public, but it failed because of lack of support by those who should have been much interested in the enactment of legislation of this kind.

The necessity of a national bureau of mines, however, is becoming more and more apparent and it may be confidently expected that legislation authorising its creation will be enacted by congress in the near future.

Is it a dangerous practice to reduce the speed of the fan at shot-firing time?

An article on "Blasting Coal in Bituminous Mines" by J. T. Beard, published in the Engineering & Mining Journal, September 23-30, 1905, reprinted by special permission, and distributed by the Aetna Powder Co, was received in this office some time ago. The article criticizes rather severely the practice now generally prevailing in this district of slowing down the fan at firing time and condemns it as extremely dangerous.

Mr. Beard says: "I do not know where this theory has gained ground, or how it could recommend itself to any intelligent man. It is not indorsed by the practice throughout the anthracite and bituminous regions of Pennsylvania, and I have been unable to find any record of such practice in any other coal field, or in any mining country.

"In the anthracite field of Pennsylvania there probably occur as many small local explosions of bodies of gas and of premature shots, as in any other district, with the result that these seldom develop into a large explosion; yet I do not hesitate to say that the creed of the anthracite district is today, and always has been, ample ventilation. It would be considered highly dangerous in the anthracite field to reduce in any way this current at the time of firing."

"A reduction of the air in circulation means a fall of pressure throughout the mine, which, in a blowing system of ventilation at least, is at once accompanied by more or less of an outflow of gas, both from the coal in gaseous seams and also from the abandoned workings in every mine; this would occur just at the time when the mine air should be free from gas. Moreover, the firing of shots always produces large volumes of gas that should at once be carried out of the mine by an ample air current, and not allowed to d ffuse into other portions of the workings. I hope that this practice (of slowing the fan just before short firing) will be discontinued wherever it has been begun."

In February 1902 a commission was appointed by Governor Cummins to inquire into and investigate the matters of explosion in the coal mines in

Iowa, and in the report submitted by that commission the following was said regarding the reduction of the air volume entering a mine at shot-firing time:

"It may appear an anomaly to present the suggestion that a reduction in the air volume entering a mine can lessen the force of an explosion. Many hold that insufficient ventilation, or poorly directed ventilation, is the direct cause of explosions and that it is dangerous, where the occurrence of explosions is feared, to reduce the air volume at any time and especially at firing time. This is true of mines generating fire damp, but there is a wide difference, with the explosion wholly due to gas and an explosion in which fire damp had no part whatever. In the former case a brisk and well directed ventilating current tends not only to obviate the occurrence of an explosion, but in the event of this occurrence, the influence of such current is beneficial because it reduces the danger of additional accumulations of gas being provided to increase the explosion's force. In the other case, where coal dust enters as one of the elements of an explosion, a brisk current going through a mine at the time of its occurrence, which is at firing time, may be made the convevor of fuel, in the shape of fine coal dust, to the forming explosion; it will certainly aid the more complete combustion of the dust, and besides as already has been remarked, the retarding influence of a strong current to the rapid advance of an explosion affords time for the combustion of a greater quantity of dust."

"It has also been stated that a decrease in the air volume, while it may lessen the dust explosion's force, would make the after damp more dangerous and deadly. Comparison of the effects of explosion, which occurred in mines where the air supply was reduced and in others where a strong current was going through them at the time of their occurrence, does not sustain that claim. Such comparison further demonstrates the fact that in the latter case the destruction wrought was infinitely greater than in the former."

"The forgoing, true as it appears to be is not to be considered an argument for poor or insufficient ventilation. Impure air may prevent an explosion, but it is impracticable, as well as dangerous, to life to resort to it as a remedy."

Now, in Mr. Beard's views this is all wrong. It is not indorsed, so he says, by the practice throughout the anthracite and bituminous regions of Pennsylvania aud he has been unable to find any record of any such practice in any other coal fields, or in any mining country. Mining practice necessarily differs in different localities, and the fact that a certain method is undesirable in Pennsylvania is not proof that this method cannot be successfully applied in the Iowa mines. So far as the situation in Iowa is concerned, we can say that the practice of slowing down the fan at firing time has passed beyond the theoretical and experimental stage; it has been found to be the correct practice fully sustained by practical tests and in adopting and adhering to this practice, the people interested in mining coal in Iowa, are not inclined to concede that their action in the premises was due to a lack of discernment and intelligence on their part.

It is now more than four years since the commission on explosions in Iowa approved the suggestion of slowing down the fan at firing time. Dur-

ing all these years the practice of reducing the speed of the fan at firing time, has been followed in this district and Mr. Beard's prediction of disaster has not come true.

If there is one man better qualified than another to judge whether the practice of slowing down the fan at firing time increases or reduces the danger, that man is the shot firer. The shot firers employed in the mines of this district are competent and experienced men, several of them have followed that line of work in other states and under the conditions Mr. Beard advocates as conducive to safety, and it must be granted that these men have fair opportunities for practical observation and comparison, and they are unanimous in declaring themselves in favor of the Iowa practice, while some of them are so emphatic in their views on this point that they would refuse to fire a shot, especially in a new mine, with the fan running at its usual speed.

Mr. Beard may have been unable to find any evidence of the Iowa practice having received favorable consideration in any other coal fields, but his failure to discover it is not proof that such evidence does not exist. Everything must have a beginning, and we admit that the practice originated in Iowa and that, for a time this state stood alone in favoring it, but that is no longer the case for the practice has found friends and favor in other coal mining states, as the following will show. In the report of the commission appointed to investigate in the coal mines of south-eastern Kansas, published early in 1905, we find the following. "Slowing down the fan seems to be of an advantage". In the report of the mine inspector of Missouri for 1904, a like statement is made in more positive language: "The question as to the speed of the fan while shot firing is in progress, is another feature worthy of attention and will be taken up in our next report. In the mean time the best information leads us to advise that the speed of the fan be lessened while shot firing is engaged in". The men making these statements hold positions of responsibility and it must be presumed that they are qualified to speak on the subject and that their recommendations as based on results of intelligent investigation on their part.

There are many instances on record to furnish convincing proof that a large air volume entering a mine at the time an explosion occurred in it, contributed materially in increasing the explosion's force and extent. In the recent disaster in the mines at Courrieres, France, the explosion exhibited its greatest virulence where the air volume was the strongest, namely at the bottom of the down cast shaft. Ventilation was provided by a powerful force fan.

Nobody in Iowa ever made the claim that reducing the speed of the fan at firing time would prevent an explosion, neither has any one in this State recommended the practice for gaseous mines. We favored the practice for non-gaseous mines, believing that it could be done with safety and that its application would materially lessen the extent and destructiveness of a dust explosion, should one occur, and at the same time give greater protection against the destruction of the machinery, the immediate availability of which is of such vital importance of quick rescue work, the ventilating fan. We believe the four years test of the practice in Iowa has shown that it does not promote explosions, that it tends rather to prevent their formation and that the belief in its effectiveness to lesson an explosion's extent and force is justified.

Inspector's Report

of the

SECOND DISTRICT

Embracing Mahaska, Marion, Monroe (Part), Keokuk, Van Buren, Davis, Jefferson, Wapello and Warren Counties.

JAMES A. CAMPBELL, Inspector.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit to you herewith my second report as Mine Inspector of the Second District for the year ending June 30, 1906. Very respectfully,

JAMES A. CAMPBELL,

Inspector.

REPORT OF THE SECOND DISTRICT.

During the last year the mines in the Second District have been visited as frequently as it was possible to do so. With few exceptions the sanitary and safety conditions of the mines are good. The law regarding safety appliances in mines has for the most part been complied with, and it affords me great pleasure to say that up to the present time it has not been necessary to resort to legal proceedings to enforce any of the requirements of the mining laws. Whenever defects have been shown to the operators or their agents they have always been ready to repair or make the improvements requested, as soon as possible, and in such cases the defect was more from neglect than any other cause.

I appreciate the interest the miners as well as the operators have taken as it has lessened the burdens of work in this district.

The mines of the district have been operated most of the time during the year, except during the month of April when they were idle waiting for an agreement to be made between the miners and operators of the state.

The prospects are good for a very large coal business the coming year, and the mines in the field are in shape to meet the demand.

There was mined in this district the last year 2,328,624 tons of coal and to produce this amount there were used 2,943 miners, 893 inside employes and 348 outside employes, making a total of 4,184 men employed in and around the mines of the district.

Prospecting is still being done over the district and the coal companies are reaching out far from the railroads, and finding good coal fields. The territory adjacent to the railroads has been worked out to a considerable extent in different parts of the district and mines are being developed further away from them. There are large fields somewhat remote from the railroads that are being developed at the present.

The coal in this district is considered a good steam coal and is of fair thickness, averaging nearly five feet.

There have been opened in this district eight new mines that promise well for the future. There have been abandoned the past year four railroad mines.

During the year ending June 30, 1906, 13 fatal and 31 nonfatal accidents have been reported from the mines of the district.

SCALES TESTED.

There were 38 sets of scales tested during the year; 13 of this number were found not weighing correctly. When superintendents were notified of the defects they always had them overhauled and put in condition to weigh correctly.

LIST OF FATAL ACCIDENTS OCCURRING IN THE MINES OF SECOND DISTRICT FOR THE YEAR ENDING JUNE 30, 1906.

MIKE MASSIG.

On July 21, 1905, a fatal accident occured to Mike Massig, a miner in the employ of the Crescent Coal Company of White City, Mahaska county, Iowa. The accident occurred at about 3 p. m. in room 8, eighth south entry of Crescent No. 5. He was at work tamping a hole when fall of slate crushed him causing death instantly. When found he was under the slate about eight feet from the face. He was 27 years old, and had been in the employ of the company about four months.

JOE MONZLUCK.

On October 10, 1905, a fatal accident occurred to Joe Monzluck, a digger in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. Accident occurred in Mine No. 11, and was caused by falling slate. He was about 40 years old and had been in the employ of the company for three years.

LOUIS BOULANGER.

On October 25, 1905, fatal accident occurred to Louis Boulanger, a miner in the employ of the Dunreath Coal Company, of Dunreath, Marion county, Iowa. Accident occurred about 1 p. m. in Mine No. 2, on second south entry on west in front of room 8, neck just turning. He was loading car when a large piece of slate, probably loosened by noon shot in neck of room, fell on him crushing his side and skull and killing him instantly.

JACKSON MEASE.

On November 29, 1905, fatal accident occurred to Jackson Mease, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. Mine No. 10 was the one in which the accident occurred. Mr. Mease was at work in room No. 30, when fall of slate occurred covering him completely and killing him instantly. He was found a few minutes later by Alonzo Brooks a timberman in the employ of the same company. Mr. Brooks had gone to fix the timbers and found Mease dead under slate.

JAMES FERGUSON.

On January 22, 1906 fatal accident occurred to James Ferguson a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. Accident happened about 9:30 a. m,. Mr. Ferguson was at work in his room No. 11, on 5th B when fall of slate occurred breaking one leg and mashing in side and ribs. He died in about two hours after bringing him home. Slate was at face of room, should have been taken down. Accident occurred in Mine No. 13, of above company.

GARLAND BROWN.

On December 19, 1905 fatal accident occurred to Garland Brown, a trapper in the employ of the Consolidation Coal Company of Buxton. Monroe county, Iowa. Accident occurred in Mine No. 10 of above company. He was holding an empty on the 4th A siding when car got away from him down the hill running over him and killing him almost instantly. When found he was lying under the hind end of car with his head across the track. He was dead when found. His death was considered purely accidental by the coroner's jury and a verdict so rendered.

LEFF EDWARDS.

On February 1, 1906 fatal accident occurred to Leff Edwards, a shot firer in the employ of the Phillips Fuel Company, of Rutledge Wapello, county, Iowa. Mr. Edwards had been in the employ of the company for some time as digger and driver, but just took the job of firing the day he was killed. No one was present at time of accident. It was supposed that he had lighted shots and failed to get far enough away before shots went off. Death was caused by flying coal. Accident occurred about 12:30 p. m. on above date. He was dead when found. His head was blown off. He was about 24 years old.

WILLIAM DYSON.

On February 28, 1906 fatal accident occusrred to Willam Dyson a miner in the employ of the Mammoth Vein Coal Company of Bussey, Marion county, Iowa. Accident occurred in yard of Mammoth Vein Coal Company near Mine No. 5. Mr. Dyson was riding on train carrying miners to work and train was backing down into yards, the coach hit a flat car and was thrown off the track. No one witnessed the accident but it was supposed that the jar threw him off the car. He was dead when found. His head was crushed. He was evidently crushed between the cars.

MINOR BROOKS.

On May 1, 1906 fatal accident occurred to Minor Brooks a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county, owa. Mr. Brooks was in his working place, 1st A entry pulling pillars, when fall of slate occurred killing him. Accident was purely accidental as his buddy had told him to take down slate before he went to work, but he did not. Mr. Brooks was over fifty years old and had been in the employ of the above company for about four years. Accident occurred in Mine No. 11 of above company.

ROBERT KING.

On September 21, 1905 fatal accident occurred to Robert King, a minor in the employ of the Garfield Coal Company of Oskaloosa, Mahaska county, Iowa. King stuck a pick into a keg of powder causing an explosion. He was badly burned and only lived a week.

J. A. RICHMOND.

On May 11, 1906 fatal accident occurred to J. A. Richmond an engineer in the employ of the Raven Coal Compony of Oskaloosa, Mahaska county, Iowa. Richmond by some means fell in hot water vat and was scalded.

Edward Ellis.

On December 20, 1905, fatal accident occurred to Edward Ellis a timberman in the employ of the Morrow Coal & Mining Company of Colon, Mahaska county, Iowa. Accident happened on Third South Entry. There was some loose slate he was attempting to remove so driver could go under, and when slate fell he did not get away far enough and was caught. He was advised by pit foreman to let it go, but he said he could pull it down and get away all right. He had been in the employ of the above company two months previous to his death.

James Gorden.

On May 3, 1906, fatal accident occurred to James Gorden a miner in the employ of the Morrow Coal & Mining Company of Colon, Mahaska County, Iowa. Mr. Gorden was at work in Room 5, Sixth North Entry when a fall of slate occured crushing his head and causing his death. Accident was caused through neglect to timber his working place, though requested by the pit foreman to do so. He had been in the employ of the above company for three years.

FATAL ACCIDENTS IN DISTRICT NO. 2—FOR YEAR ENDING JUNE 30, 1906.

Date.		Name of Deceased.	Occupation.	Cause of Death.	Employed by—	County.
1905						
July	21	Mike Massig	Miner	Fall of slate	Crescent Coal company	Mahaska.
September	21	Robt. King	Miner	Powder explosion	Garfield Coal company	Mahaska.
October	10	Joe Monzluçk	Digger	Fall of slate	Consolidation Coal company Mine 11	Monroe.
October	25	Louis Boulanger	Miner	Fall of slate	Dunreath Coal company	Marion.
November	29	Jackson Mease	Miner	Fall of slate	Consolidation Coal company Mine 10	Monroe.
December	19	Garland Brown	Trapper	Run over by car	Consolidation Coal company Mine 10	Monroe.
December	20	Edward Ellis	Timberman	Fall of slate	Morrow Coal & Mining company	Mahaska.
1906						
January	22	James Ferguson	Miner	Fall of slate	Consolidation Coal company Mine 13	Monroe.
February	1	Leff Edwards	Shot Firer	Flying coal	Phillips Fuel company No 5	Wapello.
February	28	Wm. Dyson	Miner	Crushed between cars	Mammoth Vein Coal company	Marion
May	1	Minor Brooks	Miner	Fall of slate	Consolidation Coal company Mine 11	Monroe.
May	3	Jas. Gorden	Miner	Fall of slate	Morrow Coal & Mining company	Mahaska.
May	11	J. A. Richmond	Engineer	Fell in hot water vat.	Raven Coal company	Mahaska.

LIST OF NON FATAL ACCIDENTS OCCURRING IN SECOND DISTRICT DURING THE YEAR ENDING JUNE 30, 1906.

July 21, 1905, E. J. Purcell, timberman employe of Dunreath Coal Company, Dunroath, Marion county, Iowa, fall of slate breaking one leg above ankle.

August 16, 1905, Sept Baird, an entry man employe of Consolidation Coal Company, Buxton, Monroe county, Iowa, caught by car and crushed. One leg broken.

September 25, 1905, George W. Bland, a digger in the employ of the Consolidation Coal Company of Buxton, Iowa, fall of slate breaking one leg.

October 6, 1905, Albert Ahn, a timberman in employ of Consolidation Coal Company of Buxton, Monroe county, Iowa, fall of slate. One leg broken.

October 12, 1905, Ed J. Downs, miner in the employe of the Consolidation Coal Company of Buxton, Monroe county, Iowa, was going past mouth of No. 1 Room on his way to dinner when shot went off and flying coal struck him breaking his leg.

October 21, 1905, Wm. K. Harris, a cager in the employ of Consolidation Coal Company of Buxton, Monroe county, Iowa, had one leg broken and was hurt internally by being caught between the cage and the curbing.

October 31, 1905, W. H. Taylor, a digger in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. He went to get on cage with others. A trip came onto the bottom and hit an empty, the cage did not have time to move and it caught Taylor between car and cage breaking one leg.

November 10, 1905, Charles Shelton, a driver in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. Car jumped the track and pinched him against the rib breaking one leg.

November 21, 1905, Marshall Lowery, a digger in the employ of the Consolidation Coal Company of Buxton, Iowa, fall of slate, one leg broken.

James Hope, Jr., driver in the employ of the Crescent Coal Company of White City, Mahaska county, Iowa. Coal fell off of car previous trip, caught his foot between car and coal. Bad bruise.

December 7, 1905, William Mash, a coupler employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. He was going past motor and reached out and put hand on motor cog wheel. Had three fingers and part of hand mashed off.

December 11, 1905, Robert Fairfax, digger in employ of Consolidation Coal Company of Buxton, Iowa, run over by car and leg broken.

December 14, 1905, Frank Miller in Mine No. 11 of Consolidation Coal Company of Buxton, Iowa, fall of slate breaking one leg.

December 1, 1905, John Buchanan, miner in employ of Star Coal Company of South Ottumwa, Wapello county, Iowa, fall of slate injuring him n the back and internally.

January 27, 1906, Hugh Siron, a miner in the employ of the Consolidation Coal Company of Buxton, Iowa. Shot went off before he got out of room. Bone in hand was broken and hand mashed

May 24, 1906, Angello Bazzacco miner in the employ of the Central Coal Company, Hickory, Monroe county, Iowa. Fall of slate. Right arm and collar bone broken.

December 27, 1905, John Boden miner in employ of Ackers Coal Company of Buxton, Monroe county, Iowa. Fall of slate. Hurt in back.

January 23, 1906, John Smith, shot examiner and shot firer, in the employ of the Crickett Coal Company Buxton, Monroe county, Iowa. Explosion of caps. Hand blown off.

January 30, 1906, Henry Dieleman, engineer in employ of Dieleman Coal Company, Pella, Marion county, Iowa. Blow off pipe was stopped. In trying to open he was severely scalded with hot water.

Feburary 17, 1906, John Purkey, miner, employ Crescent Coal Company, White City, Mahaska county, Iowa. Fall of slate. Arm broken.

October 12, 1905, A. T. Swanson, miner, employ Bolton & Hoover Coal Company, Oskaloosa, Mahaska county, Iowa. Fall of slate. Finger mashed.

October 17, 1905, Frank Gale, miner, employ of Rex Fuel Company, Bussey, Marion county, Iowa. Fall of slate. Leg broken.

January 19 6, D. M. Reese, miner, employ of Phillips Fuel Company of Rutledge, Wappello county, Iowa. Feet and legs bruised and back strained by dropping of cage too rapidly and the sudden stopping of same. Engineer did not know any one was on the cage.

January 29, 1906, John H. Allen, miner in the employ of the Consolidation Coal Company of Buxton, Monroe county, Iowa. He was using fuse and thought it had not lighted when the shot went off coal hitting him and breaking his ankle.

November 15, 1905, Frank Polock, miner in the employ of the Carbon Coal Company of Willard, Wapello county, Iowa. Fall of slate. Leg broken and chest bruised.

January 15, 1906, John Mitton, miner in the employ of the Cedar Creek Coal Company of Hamilton, Marion county, Iowa. Struck by flying coal breaking one arm and cutting face and head. Shot blew through.

February 6, 1906, Charles Martin, miner in the employ of the Crescent Coal Company of White City, Mahaska county Iowa, Attempted to cross shaft under cage Was caught by cage. Badly bruised.

June 30, 1906, William Moppin, driver employ of Consolidation Coal Company of Buxton, Iowa. Run onto by car. Leg broken.

May 3, 1906, Owen Bringman, entry man, employ of Consolidation Coal Company of Buxton, Monroe county, Iowa. Fall of slate. Shoulder blade broken.

September 9, 1905, Ambel Lagarette, miner, employ of Crescent Coal Company of White City, Mahaska county, Iowa. Fall of slate. Leg broken just above ankle.

May 24, 1906, Anton Motin, miner, employ of Central Coal Company of Lockman, Monroe county, Iowa. Fall of slate. Collar bone broken and back bruised.

Non Fatal Accidents in District No. 2 for Year Ending June 30, 1906.

Date.	Name.	Occupation.	Character of Injury.	Cause of Accident.	Mine where Accident Occurred.	County.
1905.						
July 21	E. J. Pursell	Timberman	Leg broken	Fall of slate	Dunreath Coal company	Marion.
August 16	Sept Baird	Entry man	Leg broken	Caught by car	Consolidation Coal company	Monroe.
September 25	Geo. W. Bland	Miner.	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
October 6	Albert Ahn	Timberman	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
October 12	Ed J. Dawns	Miner.	Leg broken	Flying coal	Consolidation Coal company	Monroe.
October 21	Wm. K. Harris	Cager.	Leg broken	Caught between cage and curbing	Consolidation Coal company	Monroe.
October 31	W. H. Taylor	Miner.	Leg broken	Run on by car	Consolidation Coal company	Monroe.
November 10	Chas. Shelton	Driver	Leg broken	Caught by car.	Consolidation Coal company	Monroe,
November 21	Marshall Lowery.	Miner.	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
November 6	Jas. Hope, Jr	Driver	Bruised foot & leg	Caught between car and coal	Crescent Coal company	Mahaska.
December 7	Wm. Mash	Coupler.	Three fingers and part of hand mashed off	Caught in cog wheel of motor.	Consolidation Coal company	Monroe.
December 11	Robert Fairfax	Miner.	Leg broken	Run over by car.	Consolidation Coal company	Monroe.
December 14	Frank Miller	Miner.	Leg broken	Fall of slate	Consolidation Coal company	Monroe.
December 1	John Buchanan	Miner.	Back iujured and hurt internally	Fall of slate	Star Coal company	Wapello.
January 27	Hugh Siron	Miner	Bone in hand broken and hand mashed.	Flying coal	Consolidation Coal company	Monroe.
May 24	Angello Bazzacca.	Miner.	Right arm and collar bone broken.	Fall of slate	Central Coal company	Monroe.
December 27	John Boden	Miner.	Hurt in back	Fall of slate	Ackers Coal company	Monroe.
1906.						
January 23	John Smith	Shot examiner and shot firer.	Hand blown off	Explosion of caps.	Crickett Coal company	Mahaska.
January 30	Henry Dieleman.	Engineer.	Severely scalded.	Trying to open blow off pipe.	Dieleman Coal company	Marion.
February 17	John Purkey	Miner.	Arm broken.	Fall of slate	Crescent Coal company	Mahaska

1905 October	16	A. T. Swanson	Miner.	Fingers mashed...	Fall of slate.....	Bolton & Hoover Coal company...	Mahaska.
October	17	Frank Gale.....	Miner.	Leg broken ...	Fall of slate ...	Rex Fuel company.....	Marion.
1906 January		D. M. Reese.....	Miner.....	Feet and legs injured and back strained.....	Sudden dropping and stopping of cage .	Phillips Fuel Company.....	Wapello.
January	29	John H. Allen.....	Miner. ..	Broken ankle....	Flying coal	Consolidation Coal company.....	Monroe.
1905 November	15	Frank Pollock. ..	Miner.	Leg broken.....	Fall of slate . ..	Carbon Coal company..... ...	Wapello.
1906 January	15	John Mitton	Miner.	One arm broken, face and head cut	Flying coal.....	Cedar Creek Coal company.....	Marion.
February	6	Chas. Martin. ..	Miner.	Badly bruised.	Caught by cage.	Crescent Coal company .. .	Mahaska.
June	20	Wm. Moppin.....	Driver.....	Leg broken	aught by car.	Consolidation Coal company.....	Monroe.
May	3	Owen Bringman..	Entry man.	Shoulder broken.	Fall of slate.....	Consolidation Coal company.....	Monroe.
1905 September	9	Ambel Lagarette	Miner.....	Leg broken	Fall of slate.....	Crescent Coal company.....	Mahaska.
1906 May	24	Anton Motin.....	Miner.....	Collar bone broken, back bruised	Fall of slate	Central Coal company.....	Monroe.

MAHASKA COUNTY.

Mahaska county, with thirteen shipping mines in operation produced for the year ending June 30, 1906, 570,178 tons of coal.

Some of the pioneer shipping mines of this county have been abandoned the past year and the equipment of some of them has been and of others is being moved to new fields, and the county will not only maintain its present output, but will show an increased tonnage for the future.

Railroad shipping facilities are good. Four railroads traverse the county, namely: The Chicago, Rock Island & Pacific; The Chicago & Northwestern; the Iowa Central Railway, and the Burlington & Quincy Railroad. The Garfield Coal Company's mines, 2, 3, and 4; the mines of the American Coal Company, the Raven Coal Company, and the Spring Creek Coal Company are located on the Chicago, Rock Island & Pacific railroad. The Whitebreast Coal Company is located on the Iowa Central railroad. The Lost Creek Fuel Company, Morrow Coal Company, Rex Coal Company. Crescent Coal Company Eveland Coal Company, and the Crawford Coal Company are located on the Chicago & Northwestern Railroad, as is also the mines of the Consolidation Coal Company (No. 14) and the McMillan Coal Company. The Bolton & Hoover Coal Company is located on the Burlington & Quincy Railroad.

There has been reported to this office for the year ending June 30, 1906, five fatal and five non fatal accidents occurring in the mines of this county.

MONROE COUNTY. (PART).

That part of Monroe County bounded on the west by the Wabash Railroad and on the south by the C. B. & Q. Railroad is in the Second District, the other part of the county being in the First District as was noted in previous report. In the part of the county situated in this, the Second District, 10 mines are in operation. Mines Nos. 1 and 2 of the Coalfield Fuel Company are located near Coalfield, and mines 1 and 2 of the Central Coal Company are located near Lockman. The Regal Coal Company, the Ackers Coal Company, and mines Nos 10, 11, 12 and 13 of the Consolidation Coal Company are located near Buxton.

The output of these mines for the year ending June 30, 1906, was 1,183,143 tons of coal. This is an increase of 195,373 tons above output of previous year, and this represents but 11 months work, as mines were closed during the month of April pending an agreement, regarding the scale of wages to be paid, between the miners and operators of the state.

Monroe still leads as the largest coal producing county in the state. In producing the 1,183,143 tons of coal, in the part of the county located in this district, employment was given to 1575 miners and 419 day men, making a total of 1994 employes working in and around the mines.

All the coal in this county is of an excellent quality and finds a ready market. The vein runs from 4 to 6 feet in thickness and is mined on the

room and pillar plan. Nearly all the mines in the country are shipping mines, but little coal being sold locally. The equipment of the mines in th's county is usually good and considerable care is used on the part of the operators in keeping the mines in fair condition.

MARION COUNTY.

Marion county is joined on the south by the largeat coal producing county (Monroe) in the state, and is itself underlaid with a good vein of coal, running from three and one-half to about nine feet in thickness. There has been and is being at the present time plenty of capital invested for the development of the coal basin in this county.

At the present the largest coal producing fields are near Hamilton and Bussey. The Mammoth Vein Coal Company is the largest company operating in this section. Their mines are located in the vicinity of Everest, a new mining town recently built. This company gives employment to more than 400 men in and around their three mines, Nos. 5,7, and 11. The Cedar Creek Coal Company does a good busineas near Hamilton. The English Creek Coal Company near Knoxville is also equipped to hoist a good tonnage. There are several smaller mines in different parts of the county which rely altogether on the local trade.

The Dunreath Coal Company at Dunreath, and the Morgan Valley Coal Company at Morgan Valley have been idle for some time but expect to resume operations in the near future.

More than seven hundred miners are given employment in the mines of this county.

Tnree fatal and three non fatal accidents were reported from the mines of this county for the year ending June 30, 1906.

WAPELLO COUNTY.

Wapello county has long been known as a coal producer and still ranks as same. Prospecting still goes on in part of the county. The Phillips Fuel Company have opened up their new mine, No. 7, and it promises well for the future. It is located southeast of No. 5. The Ramsey Bros. of Oskaloosa have drilled a large tract of land near Bidwell on the Chicago, Milwaukee & St. Paul Railroad, and are now sinking a shaft with the intention of operating by the coming fall.

The local mines of this county do a good business most of the year.

The Phillips Fuel Company, The Roseland Coal Company, and the Ottumwa Brick & Construction company have connections with the Chicago, Milwaukee & St. Paul railroad. The Eldon Coal & Mining Company have connections with the C., R. I. & P. Railroad.

There was one fatal accident and three non-fatal accidents in the mines of this county for the year ending June 30, 1906.

VAN BUREN COUNTY.

This is another of the small producing coal counties of the state. Coal has been mined in this county for many years but operations have never been on an extensive scale.

The most important mines of the county are those of the H. Findlay & Son, and the Ratcliff Coal Company with Mines located about two miles north of Douds Station The Des Moines Valley division of the Rock Island runs through here and they have a coal chute located at Douds Station. The mines north of here deliver all their output to the railroad, hauling it to the chute from the mines in wagons. This contract to furnish the railroad company with coal enables the mines having this contract to operate the entire year and makes a very profitable business for both the miner and the operator.

Other small mines in the vicinity of Douds Station do a local business and only run through the fall and winter months.

There are also a number of mines operated near Farmington but the output is not large, and what is mined is sold locally. P. M. Cahill, and the Hassler Coal Company operate small mines here. The A. R. Gardner Coal Company operates a small mine near Bentensport.

There were no accidents in the mines of this county reported to this office during the past year.

WARREN COUNTY.

Warren county produced for the year ending June 30, 1906, 21,787 tons of coal. This is more than was mined in the county during the two previous years. However, the mines in this county are purely local mines and are in operation only a part of the year, usually beginning operations in September and continueing during the fall and winter months, and then closing down during the summer.

Small mines are located near Milo, Lacona, and Liberty Center. Two are in operation near Carlisle and one near Norwalk. There are also some mines in operation near Somerset.

Two different seams of coal have been worked in this county; the upper seam is about two feet thick and is worked long-wall. The lower seam is somewhat thicker and is worked on the room and pillar plan. Most of the small mines depend on natural ventilation, while a few are aired by small furnaces, and some three or four are ventilated with fans. Most of the hoisting of coal is done with horses on the gin power principal.

Were the railroad facilities better in this county there is no doubt but what there would be an increased tonnage of coal mined each year, but at the present time there is no way of reaching the shipping points except by hauling the coal in wagons and this is most too expensive as well as too slow a way of handling the product. Indications are that some day considerable coal will be mined in this county.

JEFFERSON AND DAVIS COUNTIES.

But little coal is mined in these counties. A few small mines are operated near Fairfield, but these mines run only during the fall and winter months and the output is very small and is sold locally and in Fairfield where it is hauled by wagons. There are usually but from three to five men employed in each mine.

At Perlee on the line of the Rock Island Railroad there is some mining done but the production there is not large. The coal in this county is about three and one half feet in thickness and generally free from impurities.

In Davis county some local mines are operated near Lunsford and one near Floris Son e mining is also done near Laddsdale. However, but little coal is mined in the county, but what is produced is of a good quality, the vein averaging about three feet in thickness. Davis joins Appanoose county on the east, and this is one of the best producing counties in the state. Possibly at some time in the future more mining may be done in Davis county. We understand that there has been some prospecting in the county during the past year.

KEOKUK COUNTY.

The production of coal in Keokuk county at this time is very limited. Formerly there was considerable coal mined in the county but now but few local mines are operated and these are run only during the fall and winter months. The prospects for this county as a coal producer are not very bright, as nearly all the large mines that formerly did a good business have been worked out and abandoned. There has been a constant decrease in the tonnage of the county in recent years.

There were no fatal or non fatal accidents reported to this office from the mines of Keokuk county for the year ending June 30, 1906.

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT.

MAHASKA COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Harry Little Coal company	Harry Little	Pekay	Slope	Room and pillar	Furnace	Horse	Local.
A. E. Black Coal company	A. E. Black	Beacon	Shaft	Room and pillar	Jet	Horse	Local.
Morrow Coal company	Jas. Neagle	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping.
Garfield Coal Company No. 2	J. H. Ramsay	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping.
Garfield Coal Company No. 3	J. H. Ramsay	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping.
Williams Bros. Coal company	E. F. Williams	New Sharon	Shaft	Room and pillar	Furnace	Horse	Local.
Raven Coal company	N. J. Kissick	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping.
Lost Creek Coal company	T. M. Timbrell	Lost Creek	Shaft	Room and pillar	Fan	Steam	Shipping.
Soring Creek Coal company	J. H. Smith	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping.
Barrowman Coal company	R. Barrowman	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local.
Eveland Coal company	John Price	Eveland	Shaft	Room and pillar	Fan	Steam	Shipping.
National Union Coal company	Chas. Logue	Beacon	Shaft	Room and pillar	Fan	Steam	Shipping.
Swan Coal company	Jesse Swan	Eddyville	Slope	Room and pillar	Furnace	Horse	Local.
J. H. Sowden Coal company	J. H. Sowden	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local.
Crawford Coal company	W. W. Crockshanks	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Bolton & Hoover Coal company	John Canty	Bolton	Slope	Room and pillar	Fan	Steam	Shipping.
Crescent Coal company	Jas. Chew	White City	Shaft	Room and pillar	Fan	Steam	Shipping.
Cunningham Coal company	John Ross	Oskaloosa	Shaft	Room and pillar	Fan	Horse	Local.
Rex Fuel company	W. A. Durfee	Bussey	Shaft	Room and pillar	Fan	Steam	Shipping.
Whitebreast Fuel company	Owen Reese	Pekay	Shaft	Room and pillar	Fan	Steam	Shipping.
Kennebec Coal company	A. Love	Muchakinock	Slope	Room and pillar	Furnace	Horse	Local.
Shultz Coal company	Fred. Schultz	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local.
Lester Butler Coal company	Lester Butler	Evans	Shaft	Room and pillar	Grate	Horse	Local.
W. B. Rogers Coal company	W. B. Rogers	Olivet	Shaft	Room and pillar	Fan	Steam	Local.
Jones & McHenry Coal company	N. R. Jones	Oskaloosa	Shaft	Room and pillar	Fan	Horse	Local.
Gott Bros. Coal company	J. Gott	Lost Creek	Shaft	Room and pillar	Furnace	Horse	Local.
McMillen Coal company	Wm. McMillen	Lakonta	Shaft	Room and pillar	Fan	Steam	Local.
Nagle Coal company	Jos. Nagle	Colon	Shaft	Room and pillar	Fan	Steam	Local.
Thomas & Moody Coal company	H. S. Moody	Evans	Shaft	Room and pillar	Grate	Horse	Local
Crickett Coal company	Wm. Cricket	Bussey	Shaft	Room and pillar	Fan	Steam	Shipping.
Northwestern Fuel company	Jno. Phillips	Lost Creek	Slope	Room and pillar	Fan	Steam	Shipping.

MARION COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Hayes Coal company	Thos. Hayes.	Knoxville	Slope	Room and pillar	Stove	Horse	Local.
Knoxville Coal company	A J Booth	Flager	Shaft	Room and pillar.	Stove.	Horse.	Local.
Bunting & Kersey Coal company	J. F. Bunting	Flager	Slope	Room and pillar.	Furnace.	Horse	Local.
Cedar Creek Coal company.	Jas. A Jones	Hamilton	Shaft.	Room and pillar.	Fan	Steam	Shipping.
Dielman oal company	Jno R. Dielman	Pella	Shaft	Room and pillar.	Fan.	Steam	Local.
J. M. Olive Coal company	J. M Olive.	Harvey	Shaft	Room and pillar	Natural	Horse	Local.
Mammoth Vein Coal company No. 5	J. A. J Powers	Hamilton.	Shaft	Room and pillar	Fan	Steam	Shipping.
Mammoth Vein Coal company No 7	J. A J Powers	Hamilton	Slope	Room and pillar	Fan	Steam	Shipping.
Mammoth Vein Coal Co. Nos. 10 & 11	J. A J. Powers	Hamilton	Slope	Room and pillar.	Furnace	Horse	Shipping.
Dunreathe Coal company		Dunreathe	Shaft	Room and pillar.	Fan	Steam	Shipping.
Pleasant Valley Coal company.	Robt Hunter	Hamilton	Slope	Room and pillar.	Furnace.	Horse	Local.
Southeastern Iowa Coal company	S. P. Pasca	Hamilton	Shaft	Room and pillar.	Furnace	Steam	Shipping.
Schultz & Sneider Coal company	Schultz.	Hamilton.	Drift	Room and pillar	Furnace	Horse	Local.
American Coal Company No. 7.	Jas. A. Wilson	Flagler	Slope	Room and pillar.	Jet.	Steam	Shipping.
Davis Bros. Coal company	L. Davis	Harvey	Slope	Room and pillar	Grate.	Horse	Local.
Buwalda Bros. Coal company	J. Buwalda	Pella	Shaft	Room and pillar.	Steam Jet.	Steam	Local.
Morgan Valley Coal company		Morgan Val	Shaft.	Room and pillar.	Fan	Steam	Shipping.
Youkon Coal company	J. B Vriezelaar.	Otley.	Slope	Room and pillar.	Furnace	Horse	Local.
English Creek Coal company	J. H. Ramsay	Knoxville	Shaft	Room and pillar.	Fan	Steam	Shipping.
Amsberry & Wolf Coal company	Dave Wolf	Bussey	Slope	Room and pil ar.	Grate.	Horse	Local.
Union Coal company.		Pella	Shaft	Room and pillar.	Fan	Steam	Local.
Henry Fry Coal company	Henry Fry	Marysville	Shaft.	Room and pillar	Furnace	Horse	Local.

WAPELLO COUNTY.

C. D Sharp Coal Co	C D Sharp	Eldon, R. F. 1	Shaft	Room and pillar	Furnace	Horse	Local.
Phillips Fuel company.	A J Erskin	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
South Ottumwa Coal company.	Willis Grooms	Ottumwa	Shaft	Room and pillar	Furnace.	Horse	Local.
Star Coal company	Jas Flanders.	Ottumwa.	Slope	Room and pillar	Fan	Steam	Local.
Anchor Coal company No. 2.	W. R. Daum.	Laddsdale	Shaft	Room and pillar	Fan	Steam	Shipping.
Brown Bros. Coal company.	Chas. Brown	Keb	Shaft	Room and pillar	Fan	Steam	Local.
Ottumwa Brick & Construction Co.	Gardon Bell	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local.
Carbon Coal company	Wm Fouiks	Willard	Shaft	Room and pillar	Fan	Steam	Local.
Greenview Coal company	J. F. Lilly	Ottumwa	Shaft	Room and pillar	Furnace.	Horse	Local.

WAPELLO COUNTY—CONTINUED.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Jones Coal company	David Jones	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local.
Roseland Coal company	A D Lumsden	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping.
Styers Bros Coal company	Edward Styer	Ottumwa	Shaft	Room and pillar	Fan	Horse	Local.
Bear Breek Coal company	Jacob Allen	Bear Creek	Slope	Room and pillar	Fan	Steam	Shipping.
Waddle Bros Coal company	J Waddle	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local.
Standard Coal company	Thos. Hyde	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local.
Spring Hill Coal company	Chas. Olson	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local.
Wm Dempster Coal company	Wm. Dempster	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local.

KEOKUK COUNTY.

Maxwell Coal company	Robt. Maxwell	What Cheer	Shaft	Room and pillar	Natural	Horse	Local.
Karston Bros. Coal company	Tom Karston	What Cheer	Shaft	Room and pillar	Natural	Horse	Local.
Grudgings Bros. Coal company	Dan Grudgings	What Cheer	Shaft	Room and pillar	Natural	Horse	Local.
Moffatt, Milburn & Kuhno Coal Co.		What Cheer	Shaft	Room and pillar	Natural	Horse	Local.

MONROE COUNTY.

Central Coal company No. 1	T L. Evans	Lockman	Slope	Room and pillar	Furnace	Steam	Shipping.
Central Coal company No. 2	T L. Evans	Lockman	Slope	Room and pillar	Furnace	Horse	Shipping.
Consolidation Coal company No. 10.	B C. Ruxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal company No. 11.	B C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal company No. 12.	B C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Consolidation Coal company No. 13.	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping.
Ackers Coal company	Jas Boden	Coalfield	Slope	Room and pillar	Furnace	Horse	Shipping.
Regal Coal company	G. E. Fraker	Buxton	Shaft	Room and pillar	Natural	Steam	Shipping.
Coalfield Fuel company	C. N Bloomfield	Coalfield	Slope	Room and pillar	Fan	Steam	Shipping.

VAN BUREN COUNTY.

H. Findlay & Son Coal company	H. Findlay	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping
Hassler & Company Coal company	John Hassler	Farmington	Shaft	Room and pillar	Furnace	Horse	Shipping
A. R. Gardener Coal company	A. R. Gardener	Bentonsport, R. R. 1.	Shaft	Room and pillar	Furnace	Horse	Local
Ratcliff Coal company	H. L. Ratcliff	Douds	Shaft	Room and pillar	Furnace	Horse	Shipping
Cahill Coal company	P. M. Cahill	Farmington	Shaft	Room and pillar	Furnace	Horse	Local

WARREN COUNTY.

Diamond Coal company	W. A. Jones	Lacona	Shaft	Room and pillar	Furnace	Horse	Local
Bryant Coal company	S. C. Bryant	Milo	Shaft	Room and pillar	Furnace	Horse	Local
Bales Coal company	N. D. Bales	Milo	Shaft	Room and pillar	Furnace	Horse	Local
Miller & Hanson Coal company	C. H. Hanson	Carlisle	Shaft	Room and pillar	Natural	Horse	Local
B. D. Clark Coal company	B. D. Clark	Norwalk	Shaft	Room and pillar	Natural	Steam	Local
Perkins & Landers Coal company		Carlisle	Shaft	Long wall	Natural	Horse	Local
C. A. Milligan Coal company	C. A. Milligan	Carlisle	Shaft	Long wall	Natural	Horse	Local
Shackley & Evans Coal company	Wm. Evans	Somerset	Shaft	Long wall	Fan	Horse	Local

JEFFERSON COUNTY.

Perlee Fuel company	B. B. Stuff	Perlee	Slope	Room and pillar	Grate	Horse	Local
George T. Stever company	Geo. T. Stever	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local

DAVIS COUNTY.

J. M. Sickle Coal company	J. M. Sickle	Floris, R. F. D. No 3	Slope	Room and pillar	Furnace	Horse	Local
Big Diamond Coal company	A. C. Lunsford	Lunsford	Shaft	Room and pillar	Furnace	Horse	Local
Eldon Coal and Mining company	Joe Pool	Eldon	Shaft	Room and pillar	Fan	Steam	Shipping

TABLE NO. 1

Showing number of mines, output of coal, number of miners and other employes in District No. 2, for year ending June 30, 1906.

Name of County.	Number of mines	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes.	Number of outside employes.	Total number of employes.
Marion	12	326,994	529	145	55	729
Mahaska	20	570,178	864	254	142	1,260
Wapella	10	210,704	322	60	44	426
Monroe (Part)	10	1,183,143	1,156	419	91	1,666
Warren	6	21,787	40	6	8	54
Keokuk	3	8,473	13	5	4	22
Van Buren	4	7,345	19	4	4	27
Total	65	2,328,624	2,943	893	348	4,184

Annual Report

of the

THIRD DISTRICT

Embracing Polk, Jasper, Webster, Boone, Greene, Guthrie, Scott and Dallas counties.

EDWARD SWEENEY, Inspector.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa.

Sir,—I have the honor to submit herewith the report of the Third Inspection District, for the year ending June 30, 1906.

Very respectfully,

EDWARD SWEENEY,

Inspector.

Report of Third District.

The conditions governing the coal mining industry in the Third District have suffered no material change during the last fiscal year.

The coal tonnage for the year shows an increase of 29,241 tons over previous year, while the number of fatal accidents are three less than during the preceding year, the number being eight for the last year, while in the previous year eleven lives were lost in this district.

The entire coal industry of the state enjoyed a twenty days suspension of operations during the month of April 1906. From April first to the twentieth the mines were closed, not in a strike, however, but in suspension pending the conclusions of several joint meetings of the coal operators and miners of Illinois and other states comprising the bituminous joint scale movement. To the credit of the miners' organization, officers and men, also of the coal operators of our state, we are pleased to state that those forces were ever ready for an agreement at prices relatively fair and conforming to any wage scale that might be adopted by the joint movement states, notwithstanding that the Iowa miners and operators are denied full membership in the joint wage scale movement in Eastern states. However, they are thoroughly conversant with every phase of the competition question as found in the entire coal mining industry, and our men, by capable leadership on both sides, intelligently and wisely anticipated every conclusion of their Eastern competitors.

There is a disposition on the part of the mine owners towards better properties in so far as better equipments and conveniences go. In this, life will be better cared for. The best health and life protectors that money can buy should be provided, and the best are always the cheapest. We commend the spirit prompting the good work, and we are pleased to state for our own Iowa coal miners that they, by their watchfulness and skilfull workmanship are doing a full share towards the reduction and prevention of coal mine accidents.

CHILD LABOR LAW.

There was passed by the Thirty-First General Assembly of Iowa a law governing the employment of child labor in this state. The sections of this law relating to the employment of persons in coal mines are presented as follows:

CHILD LABOR LAW.

"A bill for an act to regulate the employment of child labor and to provide for the enforcement thereof. (Additional to Chapter 8, Title XII, of the Code.)

Be it Enacted by the General Assembly of the State of Iowa:

Section 1. No person under fourteen years of age shall be employed with or without wages or compensation in any mine, manufacturing establishment, factory, mill, shop, laundry, slaughter house or packing house,

or in any store or mercantile establishment where more than eight persons are employed, or in the operation of any freight or passenger elevator.

Sec. 2. No person under sixteen years of age shall be employed at any work or occupation by which, by reason of its nature or the place of employment, the health of such person may be injured, or his morals depraved, or at any work in which the handling or use of gunpowder, dynamite or other like explosive is required, and no female under sixteen years of age shall be employed in any capacity where the duties of such employment compel her to remain constantly standing."

As there was some difference of opinion relative to the construction of section 2 of the Child Labor Law as applied to mines, I laid the matter before the Attorney-General and asked for an official opinion in reference to this section, and his reply is given in full below:

STATE OF IOWA.

Office of Attorney-General.

Des Moines, Iowa, July 11, 1906.

"Mr. Ed Sweeney,
State Mine Inspector,
Des Moines, Iowa.

My dear Sir:

I am in receipt of your communication of the 10th. instant in which you request an official opinion relative to the construction of Section 2 of the Child Labor Law as enacted by the Thirty-First General Assembly.

Section 2 reads as follows:

"No person under sixteen years of age shall be employed at any work or occupation by which by reason of its nature or the place of employment, the health of such person may be injured or his morals depraved, or at any work in which the handling or use of gunpowder, or dynamite or other like explosives is required, and ne female under sixteen years of age shall be employed in any capacity where the duties of such employment compel her to remain constantly standing."

Relative to that part of Section 2 which reads, "or at any work in which the handling or use of gunpowder, dynamite or other like explosives is required" the question arises, Does this prohibition as applied to coal mines mean the entire mine or the immediate room or working face.

A careful reading of the language in question leads me to believe that this restriction or limitation as to child labor under the provisions of said section, does not apply to the entire mine, but only to that part in which gunpowder, dynamite and other like explosives are handled and used.

The clear intent of the law is to prevent the child under the age of sixteen years from being employed in occupations where his health, life or limb may be in danger, and it is quite apparent that such person may be employed in a mine under such conditions and be surrounded by such environments in a particular work that no danger or possible injury may result as contemplated by the statute.

I am not inclined to believe that the intent of the legislature was to exclude a child under the age of sixteen years from participating in any work connected with the coal mine or any other occupation, unless such work comes within the purview of the Statute.

Yours very truly,

LAWRENCE DEGRAFF,
Assistant Attorney-General.

POLK COUNTY.

Polk county, the leading coal producing county in the Third Inspection District, still continues in second place in the list of coal producing counties of the state, the first place again being held by Monroe county.

For the year just ended Polk county produced 1,266,224 tons of coal as against 1,094,521 tons produced last year. This is a net increase in the output of 171,703 tons and is an indication of the rapid growth of the coal industry in this county.

Notwithstanding the fact that the mines were in operation but eleven months during the year just closed (caused by a suspension in mining pending an agreement relative to wage scale and other matters, between the miners and operators of the state during the month of April), while in the previous year they were in operation during the entire year, yet the production of coal in the county this year shows a decided increase over that of the preceding year.

This report shows 1,266,224 tons of coal mined in Polk county for the year ending June 30, 1906. There was employed in and about the mines of Polk county in producing this coal 2057 miners, 777 other inside employes, and 334 outside employes, making a grand total of 3168 employes, in producing the output of this county. Last year's report showed a total of 2805 employes in the mines of this county, while this report shows 3168, a gain of 363.

There are in operation some thirty mines in the county. Of this number 19 are railroad or shipping mines and nearly all their product is shipped to points outside of the county, while the mines not on railroads supply the local trade only. This local trade, however, is a considerable item when it is remembered that a majority of the mines of this county are within a a radious of six miles of the center of Des Moines, and several of them within the city limits, and that the city alone has a population of 75,000 people, besides being a large manufacturing center and these manufactories depend on the local mines entirely for their supply of steam coal. This gives the local mines of Polk county quite a decided advantage over the mines usually supplying local trade and having no railroad connections as it enables the mines to operate the greater part of the year. There is also a large demand for coal from the brick yards that are located near the city.

Since the last report was issued a number of new mines have been opened in Polk county, and while their output does not enter into this report, they will be in operation and help swell the report for the coming fiscal year. Of the new mines in operation mention may be made of the Iowa Coal Company and the Shaw Coal Company operating mines southwest of the city, the new shafts of the Saylor and Bloomfield Coal Companies northeast of the city of Des Moines, and of the Delaware Coal Company now sinking a shaft near Berwick and east of Des Moines. All of these new mines will be equipped with first class machinery and when fully developed will add considerably to the output of coal in the county.

But two mines in the county have been abandoned during the year. Mine No. 3 of the Bloomfield Coal Company was worked out and abandoned some time ago, and on May 18th the management of the O. K. Coal Company, with a mine north of the city, decided to abandon their mine, owing

to an increased amount of water entering the mine that would be too expensive to keep pumped out.

G. M. Holmes, president of the Eagle Coal Company operating a mine northwest of the city of Des Moines, disposed of the Eagle mine some time in June to a new company composed of C D. Slinker, T. D. Fraser, W. J. Sayre and E. A. Sayre. The new owners have taken charge of the business, and I understand they will expend quite a large sum of money in making repairs preparatory to increasing the output the coming winter.

There was one life sacrificed for each 180,889 tons of coal mined in this county during the past year, as against 121,613 tons mined for each life lost the preceding year. Of the eight fatal accidents for the year in the Third District, seven occurred in the mines of Polk county. While there are seven other coal producing counties in the district with some 60 mines as against the 30 mines of Polk county, yet Polk county produced for the year ending June 30, 1906, 1,266,224 tons of coal as compared with 774,118 tons the combined production of the other seven counties of the district.

As regards the sanitary conditions, the mines of Polk county are in fair shape. The modern machinery and appliances that the majority of the mines are equipped with is such that the mines may be easily kept in compliance with the state mining laws.

JASPER COUNTY.

With 13 mines in operation Jasper county produced for the year ending June 30, 1906, 333,307 tons of coal. This is an increase over production of previous year of more than 30,000 tons. This increased production is due almost wholly to the new mine No. 8 of the Colfax Consolidated Coal Company, which opened up about a year ago. This company now operates three large mines near Colfax and Seevers. All the mines of this company have railroad connection and do a shipping business. On the night of May first a fire occurred in Mine No. 7 of this company, suffocating nineteen mules and causing considerable damage otherwise. The mules were in the mine and there was no possible way to rescue them. The origin of the fire is unknown. Loss to the company was something like $3,000. Fire also caused a serious delay and loss in the output of coal. The first mining done in the county was done three miles south of Newton and this field is still being worked by a number of local mines. At present the Snooks, Lister, Carsons, and French coal companies have mines in this vicinity. The output is sold locally and in Newton and from six to fifteen miners are employed in each of these mines. As they are purely local mines they are operated only during the fall and winter months. Worrick Bros. Coal Company, with an output of about 5,000 tons per year, are operating in the vicinity of Colfax, and the Calvert Coal Company (Formerly the C. M. Norris Coal Company) have a mine located near Prairie City. Two new companies, the James J. Gray, and the Gilbert Shaw Coal Co., are operating local mines near Monroe. The Diamond Coal Company which opened a shaft more than a year ago near Mitchellville, have been doing a fairly good business and besides local trade have been supplying the Industrial School at Mitchellville, thus enabling them to run the greater portion of the

year. On the night of January first fire destroyed the boiler and engine house of this company, but they immediately rebuilt the same and mine had resumed operations in less than a week.

All the mines of the county are worked on the room and pillar plan, and during the past year employment was given to more than six hundred miners and other employes in and about the mines.

No fatal accidents were reported from this county for the last year.

BOONE COUNTY.

The coal production for Boone county for the year ending June 30, 1906 aggregated 276,505 tons. This shows a decided decrease over the production of the county for the previous year, which is in part due to the abandoning of some shafts, and partly due to the fact that the mines in the county were operated only about two-thirds as many days as in previous year. However, some new mines have been opened, and it is quite probable that the tonnage for the coming year will show a decided increase.

The coal measures of Boone county extend north and south across the entire county, along the Des Moines river. The principal railroad mines are located near Fraser and Boonesboro, in the north and central parts of the county. Formerly there was quite a lot of coal mined near Moingona, and recently operations have been resumed here. The Big 5 Coal Company have been opera ing for some time, and nearly a year ago John Birmingham opened a new shaft here. This latter will have railroad connection with the C. & N. W. R. R. and will then employ about 30 or 40 men. The Crowe Coal Company of Boone is also opening a shaft near Moingona in a district where mining was formerly carried on and in which the coal is said to be the best found in the county. This shaft is being sunk back from the railroad and the coal will be conveyed to the railroad by means of cars run on an inclined plane. This shaft will be in operation soon. Some small mines are in operation in the southern part of the county, but little mining is done. There has recently been considerable prospecting done in the vicinity of Angus and if the reports coming to this office are correct there will be new mines sunk in this field in the near future.

The coal in Boone county usually commands a good price on the market as it is of a good quality and a free burner.

The mines around Boonesboro have a direct connection with the main line of the Chicago & Northwestern Railroad, while the mines at Fraser connect with the Newton & Northwestern, and the Minneapolis & St. Louis lines running north, thus affording excellent facilities for the shipment of coal to the north and west. The small mines not doing a shipping business supply only the local demand and the demand requires their operation only during the fall and winter months

The following coal companies still continue to be the largest producers in the county: The Boone Coal & Mining Company with mines near Fraser, operating two mines; the W. D. Johnson Coal Company, the Heaps & Crowe Coal Company, and the Rogers Coal Company. These latter operate mines in the vicinity of Boonesboro and do a shipping business.

The equipments of the mines have been improved in recent years and are for the most part now good, and there has been a willingness on th

part of the mine owners to comply with the laws of the state regarding safety appliances, etc. Fair sanitary conditions now prevail in the mines of the county.

On the night of December 17, 1905, fire destroyed the engine house of the Heaps Bros. Coal Company west of Boonesboro, but a new engine house was built at once and the mine resumed operations in the course of four or five days after the fire.

During the year two shafts of the Boone Coal & Mining Co. (Shafts Nos. 1 and 6) located near Fraser have been abandoned. The Crowe Coal Company have also abandoned their mine, and on April 1, the mine of the Heaps Bros. was abandoned. The mine operated by Albert Davis has also been abandoned.

Two accidents (one fatal and one non fatal) were reported from this county for the year ending June 30, 1906.

WEBSTER COUNTY.

Webster county for the year ending June 30, 1906, produced 112,223 tons of coal. About four hundred miners were given employment in the different mines of the county during the year. Some 14 mines are in operation. Part of the mines of this county do a regular shipping business and part of them supply the local demand only.

Operations in mining in this county are conducted for the most part near the towns of Lehigh, Kalo and Coalville. The demand for the coal from this county is very good owing to the fact that the county occupies the extreme northern part of the coal fields and shipping facilities to the northwest and north, where no coal is produced, are good. Considerable coal has been mined in the vicinity of Ft. Dodge for a number of years but no shipping mines are located near here, and what coal is now mined is used locally.

The mines at Kalo, Lehigh, and Coalville have connection with the main line of the Chicago Great Western railway running north. The mines mines at Lehigh also have connections with the Crooked Creek railroad, which runs to Webster City and connects with the main line of the Illinois Central.

There are several local mines in this county that produce a large amount of coal through the fall and winter months and employ several men during this period. Some of these mines are ventilated by furnaces, and others depend upon natural ventilation, which seems to be ample owing to the small number of miners employed in each mine through the winter season.

Extract from Mining World.

"IOWA"—No typical cannel coal has yet been reported from Iowa, though the region near Ft. Dodge in Webster county supplies a so called "cannel". An examination of its analysis shows it to have 39.04 per cent. of Volatile matter, 39.22 per cent. Fixed Carbon, and 15.87 per cent. Ash, giving it a fuel ratio just below one, or on the borderland between cannel and bituminous coals. The coal is low in the coal series, occurring only about fifty feet above the Lower Carboniferous limestone. The seam is found scattered over quite an area along the river near Ft. Dodge and appears to be somewhat more regular than some of the bituminous seams near

it in the series. Some of these seams are very pockety, varying several feet in thickness in less than one hundred yards. In its best section the cannel shows 30 inches immediately overlying 12 inches of bituminous coal. Where principally mined it shows 16 inches of cannel separated by three inches of shale, and 22 inches of bituminous coal, the cannel in all cases being above. George H. Ashley."

GUTHRIE COUNTY.

But little that is new can be said of Guthrie county regarding its coal industry from the last report, as there is but little change in the number of mines and the amount of coal produced in the county from year to year. Some mines are usually worked out and abandoned each year and others open in their place, and as they are small local mines the output, year after year, remains about the same.

The coal tonnage of Guthrie County for the year ending June 30, 1906 was 20,730 tons, this is a slight decrease in the tonnage for the year prior to this report. All the mines of the county are small and work but from three to ten men in the winter months, and the gin method is employed in hoisting the coal to the surface.

On my tours of inspection I have found the conditions fairly satisfactory relative to ventilation and safety, as most all the mines in the county is now supplied with the second opening.

There was but one accident (non fatal) reported from the mines of this county for the year ending June 30, 1906.

GREENE COUNTY.

The output of coal in Greene county for the year ending June 30, 1906 was but 20,605 tons. This is 3,135 tons more than what was mined in the county last year. Not much mining is done in this county there being but six local mines in operation at the present time. Three of these mines are located near Angus, two near Rippey, and one at Grand Junction. The mine at Grand Junction does not take out a great deal of coal as the vein is not very thick and a brick and tile works is run in connection with the mine, the clay being taken from underneath the coal, and what coal is mined is used in connection with the brick and tile works.

The coal in this county mostly lies along small creeks that are tributary to the Raccoon river, and the coal in this field is all mined for the local trade. Twenty years ago considerable coal was mined in this county, but now the production is only about one-fifth what it was at that time.

The Keystone Coal Company is the largest producer in the county at this time and has an output of more than 7,000 tons. Next comes the mines of the Buckeye Coal Company and following these are the mines of the Goodwin Brick & Tile Company at Grand Junction, the Ditchburn Coal Company of Angus, the Willow Grove Coal Company of Angus, and the Snake Creek Coal Company of Rippey.

The Keystone Coal Company employs from twenty to twenty-five men and the other companies from eight to twenty each. The most of these mines are in operation only during the fall and winter months and supply only the local demand.

But one accident (non fatal) was reported from the mines of this county the past year.

DALLAS COUNTY.

Not much coal mining has been done in Dallas county for some years. At one time in the history of the county there was some coal mined near Redfield, Linden and Van Meter, and there may be some small local mines yet running near those places but it so it is only to supply the local demand and the mines are run only during the winter months and are run with from three to five men in each mine The mine that was formerly run at Van Meter, however, employed a number of miners and did a shipping business over the line of the Rock Island railroad. This mine has been shut down for some time.

The mines now operated in the county are those of the Hutchison Bros. near Dawson, the Reese Bros. and Wm. Knox near Madrid, and the Driscoll Bros. near Woodard. Possibly not more than 60 miners are employed in the county now and the annual production of the county is now something like 16,000 tons.

There is quite a local demand for the coal mined and in all probability a number of small local mines will be in operation in various parts of the county some day. The local mines now in operation take out the most of their coal during the fall and winter months when they find a local demand that is ready to purchase all they can produce

No accidents were reported from the mines of this county for the year just closed.

SCOTT COUNTY.

But few coal mines are operated in this county now, although coal has been mined in Scott county for more than half a century. The mines now in operation are located near the towns of Jamestown and Buffalo. Scott county is a river county being located in the eastern part of the state and is not contiguous to any other coal producing county in the state. The coal in this county lies in pockets and is worked by shaft openings at a depth of from 50 to 75 feet. It is hoisted to the surface by gin methods. The vein runs from two and one-half to three feet in thickness and the quality of the coal is very good. The mines in this state are purely local, no shipping being done, and the greater part of the coal mined is sold at the mines the balance being hauled in wagons to Davenport and disposed of there.

All the mines in the county have second openings and are ventilated bys furnaces which supply all necessary ventilation required.

No fatal or non fatal accidents were reported from the mines of this county during the year ending June 30, 1906

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT.

POLK COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or local.
Des Moines Coal company	Chas. Morris	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Saylor Coal company	J. D. Owen	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 3	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Smith-Lowe Coal Company No. 4	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Norwood Coal company	Josh Norwood	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Gibson Coal company	John Gibson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Maple Block Coal company	H M. Shuler	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Bloomfield Coal company	George Yarn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Keystone Coal company	E. M. Gray	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Eagle Coal company	E. A. Sayre	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
West Riverside Coal company	Wm. Johnson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Flint Brick and Coal company	Mike Quinn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Center Coal company	Isaac Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Oak Park Fuel Company	J. P. McClelland	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Glenwood Coal company	Caleb Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Elko Coal company	Thos. Beck	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Capital Coal company	Daniel Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Madison Coal company	Ralph Madison	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Walnut Creek Coal company	Ben Bosley	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Economy Coal company	W. E. Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Hollingsworth Coal company	Geo. Simpson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Bennett Bros. Coal company	John Bennett	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Coaldale Fuel company	O. M. Carpenter	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Diamond Joe Coal company	J. H. Roberts	Runnells	Shaft	Room and pillar	Fan	Steam	Shipping.
Enterprise Coal company	G. E. Walters	Enterprise	Shaft	Room and pillar	Fan	Steam	Shipping.
Deer Creek Mining company		Enterprise	Shaft	Room and pillar	Fan	Steam	Shipping.
Valley Coal & Mining company	H Bosley	Commerce	Shaft	Longwall.		Steam	Shipping.
Iowa Coal company	Isaac Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping.
Shaw Coal company	Frank Adelfinger	Des Moines	Shaft	Room and pillar	Fan	Steam	Local.
Marchant, Johnson & Co	Jas. Marchant	Commerce	Shaft	Room and pillar	Natural	Steam	Local.

WEBSTER COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Jordeson Coal company	Samuel Jordeson	Coalville	Shaft	Longwall			Local.
Crooked Creek Coal and Railroad company	F. E. Wilson	Webster City	Shaft	Longwall	Fan	Steam	Shipping.
Pleasant Valley Coal company	Jerry Dawson	Fort Dodge	Shaft	Room and pillar	Fan	Steam	Shipping.
Gleason Coal company	John Gleason	Fort Dodge	Shaft	Room and pillar	Fan	Steam	Shipping.
McEwan Coal company	Wm. McEwan	Coalville	Shaft	Longwall	Fan	Steam	Local.
Craig & Dawson Coal company	Wm. Dawson	Kalo	Shaft	Longwall	Fan	Steam	Shipping.
Daily Coal company	Thos. Adamson	Lehigh	Shaft	Longwall	Fan	Steam	Shipping.
Rogers Coal company	E. W. Collins	Fort Dodge	Shaft	Room and pillar	Fan.	Steam	Shipping.
Johnson Coal company	A. P. Campbell	Kalo	Shaft	Longwall	Furnace.	Horse.	Shipping.
Bennett Coal company	Wesley Bennett	Kalo	Slope	Longwall	Furnace.	Horse.	Local.
Sam McClure Coal company	Sam McClure	Lehigh	Shaft	Longwall	Fan	Steam	Shipping.
Butler & Rhodes Coal company.	D. Rhodes	Coalville.	Shaft	Longwall	Fan	Steam	Local.

BOONE COUNTY.

Boone Coal and Mining Co.—No. 3	Robt. Kennedy	Fraser	Shaft	Longwall	Fan.	Steam	Shipping.
Boone Coal and Mining Co.—No. 5	Robt. Kennedy	Fraser.	Shaft	Longwall	Fan	Steam	Shipping.
Eagle Coal company	W. J. Conway	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
Crowe Coal company	Wm. Crowe	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
The Heaps Coal company	A. Heaps	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
Risher Coal company	Thos. W. Hughes	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
Rogers Coal company	Geo. W. Rogers.	Incline	Shaft	Longwall	Fan	Steam	Shipping.
Albert Davis Coal company	Albert Davis.	Pilot Mound	Shaft	Room and pillar	Furnace.	Horse.	Local.
Big Five Coal company	A. L. Carpenter.	Moingona	Shaft	Longwall	Steam jet,	Horse.	Shipping.
W. D. Johnson Coal company	H. H. Canfield	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
Steve York Coal company	Steve York.	Madrid	Shaft	Longwall	Furnace.	Horse.	Local.
Heaps & Crowe Coal company	George Heaps	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.
John Birmingham Coal company.	John Birmingham	Moingona	Shaft	Longwall	Exhaust from pump	Steam	Shipping.
Rogers Coal company.	P. J. Benson	Boonesboro	Shaft	Longwall	Fan	Steam	Shipping.

JASPER COUNTY.

Colfax Consolidated Coal Co., No. 6.	W. C. Sheppard, Jr	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Colfax Consolidated Coal Co., No. 7.	W. C. Sheppard, Jr	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Colfax Consolidated Coal Co., No. 8.	W. C. Sheppard, Jr	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping.
Mindham Coal Company	Martin Mindham	Colfax	Shaft	Room and pillar	Furnace	Horse	Local.
French Coal Company	E. P. French	Newton	Shaft	Room and pillar	Natural	Steam	Local.
Carson Bros. Coal Company	A Carson	Newton	Shaft	Room and pillar	Natural.	Horse	Local.
Lister Coal Company	Alfred Lister	Newton	Shaft	Room and pillar	Furnace	Steam	Local.
Warrick Bros. Coal Company	John Warrick	Colfax	Shaft	Room and pillar.	Fan	Horse	Shipping.
Charley Calvert Coal Company	Charley Calvert	Prairie City	Drift	Room and pillar	Furnace	Horse.	Local.
Snooks Bros Coal Company	Thos. Snooks	Newton	Shaft	Room and pillar.	Natural	Horse	Local.
Shorten Coal Company	J. A Waddell	Prairie City	Shaft	Room and pillar	Exhaust of pump	Steam	Local.
Jas J Gray Coal Company	Jas. J. Gray	Monroe	Slope	Room and pillar	Furnace	Horse	Local.
Gilbert Shaw Coal Company	Gilbert Shaw	Monroe.	Shaft	Room and pillar	Furnace	Horse	Local.

GUTHRIE COUNTY.

Robert MacCulloch Coal Company	Robert MacCulloch	Stuart	Drift	Long wall	Natural	Horse	Local.
Batschlet & Marchant Coal Co.	John Marchant	Panora	Shaft	Long wall	Furnace	Horse	Local
J. W. King Coal Company	J. W. King	Bagley	Shaft	Long wall	Fan	Horse	Local.
Murphy & Mallon Coal Company	W. F. Murphy	Yale	Shaft	Long wall	Furnace	Horse	Local.
Scott Coal Company	W. H Scott	Yale	Shaft	Long wall	Natural	Horse	Local
Sipe & Hughes Coal Company	J. D Sipe	Yale	Shaft	Long wall	Furnace	Horse	Local.
Mansell Coal Company	John Mansell	Yale	Shaft	Long wall	Fan	Horse	Local
Reese Coal Company	David Reese	Panora	Shaft	Long wall	Furnace	Horse	Local.
Jas Ritchie & Son Coal Company	Jas. Ritchie	Stuart	Shaft	Long wall	Furnace	Horse	Local.
Scott Bros. Coal Company	Issac Scott	Guthrie Center, Route 1	Shaft	Long wall	Furnace	Horse	Local.
Clipper Coal Company	Wm. Merchant.	Bagley	Shaft	Long wall	Furnace	Horse	Local.
Greenbrier Coal Company	E. E. Cleaveland	Jamaica	Shaft	Long wall	Natural	Horse	Local.
Butler & Gibson Coal Company.	Will Gibson	Yale	Shaft	Long wall	Natural	Horse	Local.
Hughes & Son Coal Company	Jesse Hughes	Yale	Shaft	Long wall	Fire in bucket	Horse	Local.

GREENE COUNTY.

Name of Company.	Superintendent.	Postoffice Address.	Shaft or Slope.	Plan of Working.	How Ventilated.	Power Used.	Shipping or Local.
Ditchburn Coal company	Robert Ditchburn	Angus	Shaft	Long wall	Fan	Horse	Local.
Buckeye Coal company	M. Feith	Rippey	Shaft	Room and pillar	Natural	Horse	Local.
Goodwin Coal company	Thos. Goodwin	Grand Jct	Shaft	Long wall	Fan	Steam	Shipping.
Willow Grove Coal company	H. A. McElheny	Angus	Shaft	Long wall	Fan	Steam	Local.
Keystone Coal company	Wm Bennett	Angus	Shaft	Long wall	Furnace	Horse	Local.
Snake Creek Coal company	Geo. Richards	Rippey	Shaft	Room and pillar.	Exhaust from pump	Steam.	Local.

DALLAS COUNTY.

Driscoll Bros. Coal company	Wm Driscoll	Woodard					
Wm. Knox Coal company	Wm. Knox	Madrid	Slope	Room and pillar		Horse	Local.
Rees Bros. Coal company	W. J. Rees	Madrid	Shaft	Room and pillar	Fan	Steam	Local.
Hutchison Bros. Coal company	W. C. Hutchison	Dawson.	Shaft	Room and pillar	Fan	Steam.	Shipping.

SCOTT COUNTY.

Sass Bros. Coal company	J. Sass	Jamestown	Shaft	Room and pillar.	Furnace	Horse	Local.
McCullough Bros. Coal company	WalterMcCullough	Buffalo	Slope	Room and pillar	Grate	Horse	Local.
Fidley & Anderson	Wm Fidley	Jamestown	Shaft	Room and pillar	Furnace	Horse	Local.
Buckmeyer Coal company	Jas. Buckmeyer	Buffalo	Shaft	Room and pillar	Grate.	Steam	Local.
Winfield Coal company.	Frank Winfield	Buffalo	Shaft	Room and pillar.	Grate	Horse	Local.

TABLE No. 1.

Showing number of mines, output of coal, number of miners and other employes in district No. 3, for year ending June 30, 1906.

Name of County.	Number of mines	Amount of coal of all kinds produced.	Number of miners employed.	Number of other inside employes	Number of outside employes.	Total number of employes.
Polk	29	1,266,224	2,067	777	334	3,168
Jasper	13	333,307	620	184	47	851
Boone	12	276,505	625	176	74	875
Webster	14	112,223	251	92	36	379
Guthrie	12	20,730	97	13	16	126
Greene	7	20,605	70	17	10	97
Dallas	5	9,888	37	13	8	58
Scott	3	860	6	6	0	12
Total	95	2 040,342	3,763	1,278	525	5,566

TABLE No. 2.

Showing the Output of Coal of the Counties Comprising the Third District for the Past Six Years.

Counties.	1901	1902	1903	1904	1905	1906
Polk	938,600	981,610	996,573	966,172	1,094,521	1,266,224
Boone	302 800	286,300	288,055	345,472	422,802	276,505
Jasper	134,500	153 400	323,312	302,599	305,027	333,307
Webster	167 300	132,477	159,990	155,323	122,056	112,223
Greene	12 400	16 192	12.711	15,898	17,470	20,605
Guthrie	16 750	17,250	16,545	29,355	29,416	20.730
Dallas	29,400	34,750	19,990	16,586	13,599	9,888
Scott	22,469	28,973	18,280	14,983	5,210	860

TABLE No. 3.

Showing Tonnage in District 3, for past ten years, with number of fatal accidents and number of employes, with tonnage per accident, etc.

Year.	Number of fatal accidents	Tons of coal mined each year.	Number of employes.	Tons of coal mined per accident.	Number of employes for each accident.
1897	8	1,201,788	3,649	150.223	456
1898	10	1,370.459	3.352	137,045	335
1899	11	1,555,050	3,437	141.368	312
1900	8	1 508.020	3,819	188,502	477
1901	7	1,607.690	3,904	229,670	558
1902	13	1.653 152	3,878	127 166	298
1903	5	1,835,456	3,691	367 091	738
1904	10	1,846,386	4,989	184,638	499
1905	11	2,010,101	5,390	182.736	490
1906	8	2.040 342	5.566	255.042	696

Fatal Accidents in District No. 3 for Year Ending June 30, 1906.

Date.		Name of Deceased.	Occupation.	Cause of Death.	Employed by—	County.
1905.						
July	24	F. L. Chittenden	Miner	Fall of Slate	Keystone Coal Company	Polk
August	23	William Turner	Shot Examiner	Flying Coal	Saylor Coal Company	Polk
August	28	Robert Bartholomew	Miner	Flying Coal	Eagle Coal Company	Polk
September	23	Elias Reese	Miner	Fall of Slate	Norwood Coal Company	Polk
October	16	Carl Anderson	Miner	Fall of Slate	Maple Block Coal Company	Polk
October	24	Wm. Feeney	Miner	Fall of Slate	Bennett Bros Coal Company	Polk
1906.						
February	16	Ed. Taylor	Miner	Fall of Coal	Heaps & Crowe Coal Company	Boone
March	12	John Cavanaugh	Driver	Run Over by Car	Smith-Lowe Coal Company	Polk

Non-Fatal Accidents in District No. 3 for Year Ending June 30, 1906.

Date.	Name.	Occupation.	Character of Injury	Cause of Accident.	Mine Where Accident Occurred.	County.
1905						
July 10	Wm. Alexander...	Driver.	Hip bruised	Not spragging car	Deer Creek Coal Company..... ..	Polk.
August 1	Andrew Lightfoot	Miner.....	Face injured and torn some bones broken	Caught by cage...	Des Moines Coal Company.....	Polk.
August 21	Allan McPherson.	Timberman	Hip bruised..	Fall of slate. ...	Eagle Coal Company	Polk.
September 26	Andy Peterson ..	Miner.....	Two ribs broken.	Fall of slate. ..	O. K. Coal Company	Polk.
September 27	T. T. Jones ...	Shot examiner .	Foot injured.	Fall of slate.....	Coaldale Fuel Company.....	Polk.
October 19	Ed. Cocoanut .	Shot Firer..	Left leg and collar-bone broken.	Flying coal..	Enterprise Coal Company	Polk.
November 2	Fred Johnson	Miner.. ...	Foot crushed	Fall of coal	Coaldale Fuel Company	Polk
December 8	M. Amedeo	Miner.. ...	Rib broken ...	Fall of slate.....	Smith-Lowe Coal Company . ..	Polk.
December 15	Chas. Smith	Miner.. ..	Back broken ..	Fall of slate	O. K. Coal Company.....	Polk.
December 8	Wm. Miles...	Miner.....	Leg broken	Fall of slate ..	W. D. Johnson Coal Company....	Boone.
1906						
January 3	Tom Jones ...	Driver.	Foot sprained	Caught by car	Coaldale Fuel Company....	Polk.
January 19	Steve Mathovich..	Trapper	Leg broken ..	Run over by car..	Enterprise Coal Company	Polk
January 29	Frank Fester	Driver.	Leg broken.... .	Slipped off tail chain.... ...	Center Coal Company	Polk.
January 29	Chas. Corbin	Car pusher.	Leg broken	Car ran over him	West Riverside Coal Company....	Polk.
February 5	Wm. Newton.....	Driver.	Bruised in hips. ..	Fall of slate..	Glenwood Coal Company	Polk
February 9	Wm. King ..	Miner.....	Leg broken ..	Fall of slate.... .	Smith-Lowe Coal Company.	Polk
June 1	John Bell . ..	Miner.	Back injured.....	Fall of shale ...	Goodwin Coal Company	Greene.
June 6	Joe Music	Miner..	Back injured	Fall of shale	Smith-Lowe Coal Company ...	Polk.
June 13	Enoch Kodisky	Miner..	Back and stomach injured	Fall of boulder	Smith-Lowe Coal Company..... .	Polk.
June 15	Pearl Bush... ..	Laborer. ..	Left arm broken 3 ribs cracked	Fall of slate.....	Smith-Lowe Coal Company	Polk.

Non-Fatal Accidents in District No. 3, for Year Ending June 30, 1906.

Date.	Name.	Occupation.	Character of Injury	Cause of Accident.	Mine Where Accident Occurred	County.
1906. June 19	John Hepburn....	Night pump man	Both legs broken	Kicked by mule...	Norwood Coal company	Polk.
February 1	Frank Green.	Miner..	Shoulder dislocated	Fall of slate....	Greenbrier Coal company.	Guthrie.
May 9	Gust Larson	Miner..	Leg broken	Fall of slate ..	Bloomfield Coal company.....	Polk.
1905 September 16	John Gibson.	Miner..	Leg broken	Runover by car ..	Worrick Bros. Coal company	Jasper.
1904. January 1	Harry Mariell.	Miner.. ...	Eye injured ...	Premature discharge of shot	Butler & Rhodes....	Webster.
1905. December 20	John Keating ...	Miner..	Scalp wound.	Fall of slate ..	Shaw Coal company	Polk.
July 14	Wm. Riddle	Miner..	Shoulder broken.	Drill dropped on him..... .	West Riverside Coal company	Polk.
July 16	Bert Bedford	Miner.....	Ribs broken	Caught in fan shaft	West Riverside Coal company....	Polk.
1906. January	Ed. Cahill ..	Trip oiler .	Head scapled.....	By rope.....	Norwood Coal company	Polk.
June 23	F. Hilton . ..	Miner.....	Leg broken	Caught by cage ..	Norwood Coal company	Polk.
June 16	E Akens. ..	Miner..	Leg broken....	Fall of slate ...	Norwood Coal company	Polk.
June 21	Doc. Hamilton	Miner..	Leg broken	Fall of slate.....	Norwood Coal company	Polk.
1905. October 31	John McCauley.	Miner..	Flesh wound on arm	Falling coal	Madison Coal company	Polk.
December 2	J. Copinagra.....	Miner..	Ribs broken.	Falling coal	Madison Coal company.....	Polk.
October 9	J L. Plunkett	Miner.. .	Both legs broken..	Fall of slate ...	Enterprise Coal company	Polk.
September 6	H E. Portwood	Driver.	Leg broken	Collission of cars.	Des Moines Coal company	Polk.
October 3	Jake Campbell ..	Miner..	Leg broken..... .	Fall of slate	Des Moines Coal company.....	Polk.
1906. February 24	H. E. Portwood...	Driver	Leg broken	Fell off car.	Des Moines Coal company.....	Polk.
March 16	Max Stein	Driver	Ribs broken.	Fell off car.	Des Moines Coal company.....	Polk.
May 16	Max Stein.....	Miner..	Heel bruised	Fall of slate	Des Moines Coal company.....	Polk.
June 15	Will Brophy.	Driver	Body bruised..	Fell off car	Des Moines Coal company .	Polk.

FATAL ACCIDENTS IN THIRD DISTRICT FOR YEAR ENDING JUNE 30, 1906.

ROBERT BARTHOLOMEW.

On August 28, 1905, Fatal Accident occured to Robert Bartholomew, a miner in the employ of the Eagle Coal Mining Company of Des Moines. This accident happened about 11:30 a. m., in first room on ninth north entry. Mr. Bartholomew had lighted his shot in rotation with three others in same entry. One man did not get his shot lighted. All four came out to main entry and sat down to count reports of shots then all went back to furnish light for the one man who had not lighted his shot. When Bartholomew came to his room he turned in to see what his shot had done believing it had gone off. In a moment his shot went off blowing out the lights of the other men, who upon getting lights returned to his room, finding him dead. Death was caused by piece of coal from shot striking him in forehead and fracturing his skull.

ELIAS REESE.

On September 23, 1905 at 9 a. m. fatal accident occured to Elias Reese a miner in the employ of the Norwood Coal Campany of Norwoodville, Polk county. Mr. Reese was in the 14th west entry at the face when fall of slate occured. He was not killed at the time but died in the hospital 24 hours later. Firing of bottom shot had knocked props out and the supposition is that he was preparing to set them when the fall of slate occurred.

CARL ANDERSON.

Carl Anderson a miner in the employ of the Maple Block Coal Company of Des Moines was fatally injured on October 16, 1905 by a fall of slate while at work for the above company. Mr. Anderson was at work in second north entry off the east main entry when fall of slate and sulphur occurred. Both legs were broken and he received other internal injuries. These injuries caused his death which occured about 8:30 a. m. on October 18, 1905. Mr. Anderson was 72 years of age and had been in the employ of the company for three months.

WILLIAM FEENEY.

On October 24, 1905, fatal accident occurred to William Feeney, a miner in the employ of Bennett Bros. Coal Company of Des Moines, Polk county. Mr. Feeney was at work at face of room when piece of slate fell crushing him. He had been in the employ of the company about three months. Was 49 years old.

ED TAYLOR.

On February 16, 1906. fatal accident occurred to Ed Taylor, a miner in the employ of the Heaps & Crowe Coal Company of Boone. Accident occurred at about 3:45 p. m. on above date. Mr. Taylor was in his room

at place of work and was mining loose coal. He evidently neglected to prop or sprague to secure it and coal fell on him. No bones were broken but death was caused by suffocation. Coroners verdict: No one to blame.

JOHN CAVANAUGH.

On March 12, 1906, at 1:45 p. m. a fatal accident occurred to John Cavanaugh, a driver, in mine No. 4 of the Smith-Lowe Coal Company of Carbondale. Accident occurred in third north entry in mine No. 4. He was driving between partings, two car trip, no one present at time of accident. Supposition is that he fell off the chain and was run over by the car under which he was found a short time later.

WILLIAM TURNER.

On August 23, 1905, fatal accident occurred to William Turner, a shot examiner and shot firer, in the employ of the Saylor Coal Company of Saylorville, Iowa. Mr. Turner had lighted shot in room No. 3 in breakthrough and had gone into room No. 4 to fire a shot before the shot in No. 3 room had gone off. Shot blew through from No. 3 and caught him. Skull was fractured by flying coal.

F. L. CHITTENDEN.

On July 24, 1905, fatal accident occurred to F. L. Chittenden a miner in the employ of the Keystone Coal Company of Des Moines, Polk county, Iowa. Mr. Chittenden was at work in Room 11, 6 h east entry when fall of slate occurred. His death was supposed to be due to suffocation by being forced down into the slack and dirt of room.

NON FATAL ACCIDENTS OCCURING IN THE THIRD DISTRICT FOR YEAR ENDING JUNE 30, 1906.

July 10, 1905, William Alexander, employe of Deer Creek Coal Company, Polk county, hip bruised by car. Accident caused by not spragging car.

August 1, 190·, Andrew Lightfoot, miner employ Des Moines Coal Company, Polk county. Caught by cage. Face injured and torn. Some bones broken.

August 21, 1905, Allan McPherson, timberman for Eagle Coal Company of Polk County. Piece of draw slate fell, bruising hip and leg.

September 25, 1905, Andy Peterson, miner in employ of O. K. Coal Company of Polk county. Fall of slate. Two ribs broken and knee sprained.

September 27, 1905, T. T. Jones a shot examiner in employ of Coaldale Fuel Company of Des Moines. Fall of slate slightly injuring one foot.

October 19, 1905, Ed Cocoanut a shot firer in employ of Enterprise Coal company of Enterprise. Shot blowed out. Was hit by flying coal. Left leg and one collar bone broken.

November 2, 1905, Fred Johnson, miner employ of Coaldale Fuel Company of Des Moines. Fall of coal crushing foot.

December 8, 1905, M. Amedeo, miner employ of Smith-Lowe Coal Company of Carbondale. Fall of slate. One rib broken and shoulder and back bruised.

December 15. 1905, Charles Smith, miner employ O. K. Coal Company of Des Moines. Fall of slate. Three vertebrae in his back were broken.

December 8, 1905, William Miles, miner employ of W. D. Johnson Coal Company of Boone county. Fall of slate. Leg broken.

January 3, 1906, Tom Jones a driver for Coaldale Fuel Company of Des Moines. Caught by bumper on car. Foot injured.

January 19, 1906, Steve Mathovich a trapper for Enterprise Coal Company of Enterprise. Run over by car. Left leg broken in two places and hurt about head.

January 29, 1906, Frank Fester a mule driver for Center Coal Company of Des Moines. Slipped off tail chain. Right leg broken.

January 29, 1906, Charles Corbin a car pusher for West Riverside Coal Company of Des Moines. Car ran over him. One leg broken.

February 5, 1905, William Newton, Jr., a driver for Glenwood Coal Company of Des Moines. Fall of slate. Bruised in hips and about legs.

February 9, 1906, William King a miner employ of Smith-Lowe Coal Company of Carbondale. Fall of slate. One leg broken and muscles of back injured.

June 1, 1906, John Bell a miner in employ of Goodwin Coal Company of Grand Junction, Greene county. Piece of gray shale slipped out of roof and caught him injuring his back.

June 6, 1906, Joe Music, a miner in the employ of the Smith-Lowe Coal Company of Carbondale, Polk county. Fall of slate straining muscles of back.

June 13, 1906, Enock Kodisky, a miner in the employ of the Smith-Lowe Coal Company of Carbondale. Fall of "fake Boulder" injuring him in back and stomach slightly.

June 15, 1906, Pearl Bus, a day laborer in employ of Smith-Lowe Coal Company of Carbondale. Fall of slate. Left arm broken and three ribs cracked.

June 19, 1906, John Hepburn, a night pumpman in employ of the Norwood Coal Company of Norwoodville, Polk county. Kicked by mule. Both legs broken below knees.

February 1, 1906, Frank Green, a miner in the employ of the Greenbrier Coal Company of Jamaica, Guthrie county. Fall of slate. Shoulder dislocated.

May 9, 1906, Gust Larson, a miner in the employ of the Bloomfield Coal Company of Des Moines, was injured by fall of slate while at work in his room. One leg was broken in two places and his nose was broken.

(Mr. Larson died on Sunday, May 26th. There was a post-mortem held in which the doctors found his death was caused by the disintregation of the walls of the heart, and that the accident had nothing to do with his death).

September 16, 1905, John Gibson, a miner in the employ of the Worrick Bros. Coal Company of Colfax, Jasper county. Leg broken by car running onto him.

January 1, 1906, Harry Mariell, miner, in the employ of Butler & Rhodes Coal Company of Webster county. Eye injured by premature discharge of shot.

December 20, 1905, John Keating, miner in the employ of the Shaw Coal Company of Des Moines, Polk county. Scalp wound. Wedging slate; piece hit him on the head.

July 14, 1905. William Riddle, miner, in the employ of the West Riverside Coal Company of Des Moines, Polk county. Shoulder broken. Sinking shaft; drill dropped down on him.

July 16, 1905, Bert Bedford, miner, in the employ of the West Riverside Coal Company, Des Moines, Polk county, Two ribs broken; caught in fan shaft.

January 1906, Ed Cahall, trip oiler, employ of Norwood Coal Company of Norwoodville, Polk county. Head scalped by rope.

June 23, 1906, F. Hilton, miner, in the employ of the Norwood Coal Company of Norwoodville, Polk county. Leg broken. Caught by cage.

June 16, 1906, E. Akens, miner, in the employ of the Norwood Coal Company of Norwoodville, Polk county. Leg broken by fall of slate.

June 21, 1906, Doc Hamilton, miner, in the employ of the Norwood Coal Company of Norwoodville, Polk county. Leg broken by fall of slate.

October 31, 1905, John McCauley, miner, in the employ of the Madison Coal Company of Des Moines, Polk county. Flesh wound in right arm. Wedging coal; piece fell on arm.

December 2, 1905, J. Copinagro, miner in the employ of Madison Coal Company of Des Moines, Polk county. Two ribs broken, mining off shot.

October 9, 1905, J. L. Plunkett, miner Enterprise Coal Company of Enterprise, Polk county. Both legs broken by fall of slate.

September 6, 1905, H. E. Portwood, mule driver for Des Moines Coal Company of Marquisville, Polk county. Right leg broken. Collision. Ran into another car.

October 3, 1905, Jake Campbell, miner, employ of Des Moines Coal Company of Marquisville, Polk county. Leg broken by fall of slate.

February 24, 1906, H. E. Portwood, mule driver for Des Moines Coal Company of Marquisville, Polk county. Leg broken. Stepped off car and leg gave way; fell breaking it.

March 16, 1906, Max Stein, mule driver for Des Moines Coal Company of Marquisville, Polk county. Fell off car; ribs broken.

May 17, 1906, Max Stein, miner for Des Moines Coal Company of Polk county. Fall of slate bruising right heel.

June 12, 1906, Will Brophy, driver for Des Moines Coal Company of Marquisville, Polk county. Fell off car badly bruised about body.

Secretary of State.

FOURTEENTH BIENNIAL REPORT

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OF THE

STATE MINE INSPECTORS

FOR THE

Two Years Ending June 30, 1908

TO THE

GOVERNOR OF THE STATE OF IOWA

PRINTED BY ORDER OF THE GENERAL ASSEMBLY

DES MOINES
EMORY H. ENGLISH, STATE PRINTER
1908

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STATE MINE INSPECTORS.

District No. 1—JOHN VERNER, Chariton.
District No. 2—RHYS T. RHYS, Ottumwa.
District No. 3—EDWARD SWEENEY, Des Moines.

BOARD OF EXAMINERS.

FOR MINE INSPECTORS, MINE FOREMEN, AND HOISTING ENGINEERS

EDWARD GRAY, *President*, Des Moines.
JOE W. BAKER, *Secretary and Treasurer*, Woodward.
JOHN CALDWELL, Seymour.
JOHN OWENS, Beacon.
H. BOOTH, Knoxville.

BIENNIAL REPORT OF THE

FIRST DISTRICT

COUNTIES COMPRISING THE FIRST DISTRICT:

APPANOOSE,
LUCAS,
TAYLOR,
ADAMS.
MONROE (part),
WAYNE,
PAGE,

JOHN VERNER, INSPECTOR,
Chariton, Iowa.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa:

SIR,—I have the honor to submit to you herewith the report of the First Inspection District, covering the two years ending June 30, 1908.

Very respectfully,

JOHN VERNER,
Chariton, Iowa.

Inspector First District.

REPORT OF FIRST DISTRICT.

The first inspection district is composed at present of the counties of Appanoose, Monroe (part), Lucas, Wayne, Taylor, Page and Adams. During the last two years the mines in the district were inspected in compliance with the requirements of the law and as often as possible. During the year ending June 30, 1907, 216 mines were inspected and five scales were tested; during the year ending June 30, 1908, 220 inspections were made and seven scales were tested.

I am pleased to say that there has been and is now a manifest desire on the part of the mine operators, especially those operating the larger plants, to put and keep their mines in as good condition as possible. They realize that providing reasonable safety and fair sanitary conditions is not only right and due the men working in the mines, but that such policy is decidedly good business. But in order to get the best results from the good intentions of the operators, the earnest co-operation of the men directly in charge of the mining operations is needed. To the end that intelligent and fairly uniform co-operation by the men now licensed by the State to supervise the mines and handle the machinery may result, their duties should be defined by law. The present law requiring certificated mine foremen and hoisting engineers has proved a step in the right direction, but it is incomplete, because their duties and responsibilities are not prescribed by law. Furthermore, no matter how unworthy or unfit they may prove to be, after having received their certificates of competency from the examining board there is now no lawful way by which the certificates granted such persons may be suspended or revoked for cause. I therefore respectfully recommend that this matter receive the attention of the next legislature, believing that the defining by law of the duties and responsibilities of mine foremen and hoisting engineers will prove of material assistance in decreasing the number of fatal and serious accidents in and around the mines.

During the year ending June 30, 1907, the mines in this district produced 2,843,023 tons of coal, while during the year ending June 30, 1908, the coal production amounted to 2,653,599 tons, a decrease

as compared with the previous year of 188,824 tons. Every county in the district had a decreased output of coal. Appanoose county showed a decrease of 50,161 tons, Monroe county (part) 44,923 tons, Lucas county 52,291 tons, Wayne county 35,293 tons, Taylor county 2,090 tons, Page county 1,936 tons and Adams county 2,730 tons.

The following tables give the number of mines in the counties comprising this district, their coal output and the number of persons employed in the coal industry:

NUMBER OF MINES IN OPERATION IN EACH COUNTY, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES IN DISTRICT NO. 1, FOR THE YEAR ENDING JUNE 30, 1907.

County	Number of railroad mines	Number of local mines	Tons of coal of all grades produced	Number of miners	Number of other inside employes	Number of outside employes	Total number employed
Appanoose	64	29	1,157,967	2,884	616	388	3,888
Monroe (part)	10	1	1,346,297	1,328	537	188	2,053
Lucas	2	2	126,579	159	53	25	237
Wayne	2	8	159,758	347	113	61	521
Taylor	3	4	15,951	81	18	10	109
Page	----	5	15,981	76	17	10	103
Adams	----	12	20,490	142	18	18	178
Totals	81	61	2,843,023	5,017	1,372	700	7,089

NUMBER OF MINES IN OPERATION IN EACH COUNTY, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES IN DISTRICT NO. 1, FOR THE YEAR ENDING JUNE 30, 1908.

County	Number of railroad mines	Number of local mines	Tons of coal of all grades produced	Number of miners	Number of other inside employes	Number of outside employes	Total number employed
Appanoose	62	29	1,107,806	2,991	629	406	4,026
Monroe (part)	10	----	1,301,374	1,289	585	202	2,076
Lucas	1	2	74,288	113	40	20	170
Wayne	2	7	124,465	327	94	50	471
Taylor	3	3	13,861	58	14	7	79
Page	----	5	14,045	75	12	9	96
Adams	----	10	17,760	120	14	14	148
Totals	78	56	2,653,599	4,973	1,388	708	7,069

COAL PRODUCTION IN TONS IN THE COUNTIES NOW COMPRISING THE FIRST DISTRICT, FOR THE LAST FIVE YEARS.

County.	1904	1905	1906	1907	1908
Appanoose	895,759	895,480	1,056,655	1,157,967	1,107,806
Monroe (part)	1,118,548	1,129,357	1,260,544	1,346,297	1,301,374
Lucas	239,384	165,256	151,433	126,579	74,288
Wayne	95,424	104,873	121,288	159,758	124,465
Taylor	13,830	15,651	19,505	15,951	13,861
Page	17,400	17,166	17,278	15,951	14,045
Adams	15,135	19,577	21,817	20,490	17,760
Totals	2,395,470	2,347,360	2,648,519	2,843,038	2,653,599

ACCIDENTS.

During the year ending June 30, 1907, nine fatal accidents occurred in and around the mines in this district, and thirty-two serious accidents were reported to this office. Five persons were killed by falls of roof or coal, two were killed by being run over by cars, one fell down a hoisting shaft and one was crushed by a box car. Nineteen of the serious accidents were caused by falls of roof or coal, nine persons were injured by cars and four injuries were due to other causes.

The year ending June 30, 1908, showed a decided increase in the number of deaths. During that year fifteen persons were killed in and around the mines of this district. While none of the coroner's verdicts charges culpable negligence on the part of the persons in charge of the mines where these fifteen men lost their lives, it is very probable, and in some cases a fact, that a number of these deaths would not have occurred had there been more efficient discipline in the mines and had the mine foremen in charge always had a correct conception of their responsibilities. No reasonable man will expect mine foremen to do impossible things. They cannot prevent all accidents in the mines under their control, but they can and should use their powers and opportunities vigorously at all times to leave nothing undone to prevent their occurrence. In order to have uniform action toward lessening the loss of life in the mines the duties of mine foremen and hoisting engineers should be defined specifically by law.

Thirty-seven serious accidents were reported for the year ending June 30, 1908. Twenty-two of these accidents were due to falls of roof or coal, and twelve persons were injured by cars.

The following tables give the accidents in detail and their relation to the output of coal and number of men employed:

FATAL ACCIDENTS IN DISTRICT No. 1, JULY 1, 1906—JUNE 30, 1907.

Date		Name of Deceased	Occupation	Cause of Death	Employed by—	County
1906.						
August	14	J. W. Harnden	Driver	Run over by car	Hocking Coal Co.	Monroe
August	15	C. Ellis	Loader	Fall of black bat	Centerville Block Coal Co.	Appanoose
November	12	John Kitto	Driver	Run over by car	Wapello Coal Co.	Monroe
December	29	W. Glasscock		Fall of slate	Thistle Coal Co.	Appanoose
December	31	Geo. Jones, Jr	Roadman	Fell down shaft	Numa Block Coal Co.	Wayne
1907.						
January	21	Geo. Swab	Miner	Fall of coal	Thistle Coal Co.	Appanoose
February	1	Jos. Bloom	Miner	Fall of slate	White Ash Coal Co.	Monroe
February	13	Jos. Burdess	Miner	Fall of slate	Wapello Coal Co.	Monroe
May	18	E. Miller	Chunker	Crushed by boxcar	Hocking Coal Co.	Monroe

SERIOUS ACCIDENTS IN DISTRICT No. 1, JULY 1, 1906—JUNE 30, 1907.

Date		Name of Injured	Occupation	Character of Injury	Cause of Injury	Employed by—	County
1906.							
July	6	D. S. Jame	Timberman	Spine and scalp bruised	Fall of slate	Smoky Hollow Coal Co.	Monroe
August	3	P. Manara	Timberman	Back, chest and arm bruised	Fall of slate	Smoky Hollow Coal Co.	Monroe
August	15	J. Mathews	Miner	Back injured	Fall of slate	Wapello Coal Co.	Monroe
August	22	G. Shibohar	Driver	Arm broken	Spragging car	Star Coal Co.	Monroe
September	1	E. T. Ades	Timberman	Leg broken	Fall of slate	Phillips Fuel Co.	Monroe
September	10	Geo. McCormick	Miner	Back injured	Fell from trip	Mystic Coal Co.	Appanoose
September	15	C. W. Leach	Laborer	Leg broken	Fall of slate	Phillips Fuel Co.	Monroe
September	24	R. McCallum	Miner	Leg broken	Fall of coal	Winnifred Coal Co.	Appanoose
October	8	Geo. Ellis	Cager	Foot injured	Fell off cage	Centerville Block Coal Co.	Appanoose
October	16	Wm. Ellis	Pipeman	Two ribs broken	Fall of slate	Centerville Block Coal Co.	Appanoose
October	20	John Rivers	Miner	Leg broken	Fall of slate	Wapello Coal Co.	Monroe
November	10	F. M. Vought	Miner	Leg broken	Fall of coal	Walnut Grove Coal Co.	Appanoose
November	15	R. Garusch	Timberman	Foot bruised and bone broken	Fall of slate	Smoky Hollow Coal Co.	Monroe
November	28	C. Hasty	Driver	Arm broken	Caught between cars	Centerville Block Coal Co.	Appanoose
December	3	J. Spavin	Driver	Body and head bruised	Fell off tail chain	Hocking Coal Co.	Monroe
December	10	Jas. Storer	Miner	Arm broken	Fall of coal	Manufacturers C. & C. Co.	Appanoose
December	15	I. Price	Driver	Foot badly bruised	Car fell o nhim	Wapello Coal Co.	Monroe
December	19	J. Barto	Miner	Face and arms burned	Ignition of powder	Smoky Hollow Coal Co.	Monroe
December	29	H. Bilterman, Sr.	Miner	Three ribs broken	Fall of slate	Smoky Hollow Coal Co.	Monroe
January	2	W. Mitchell	Trapper	Arm broken	Fell in jumping from car	Wapello Coal Co.	Monroe
January	9	Geo. Murrow	Driver	Leg broken	Fell under cars	Wapello Coal Co.	Monroe
January	28	J. Morrow	Topman	Arm broken	Fell on dirt dump	Mendota Coal & Mining Co.	Appanoose
January	28	O. Bettidine	Chunker	Leg broken	Caught by chute	Centerville Block Coal Co.	Appanoose
February	1	S. Mowe	Driver	Finger cut off	Caught between car and rib	Hocking Coal Co.	Monroe
March	24	G. Robinson	Miner	Knee dislocated	Fall of slate	Hocking Coal Co.	Monroe
March	29	R. Dale	Coupler	Wrist broken	Caught between cars	Hocking Coal Co.	Monroe
April	10	G. Leggett, Sr.	Timberman	Three ribs broken	Fall of slate	Smoky Hollow Coal Co.	Monroe
April	27	John Gore	Miner	Back and shoulders bruised	Fall of coal	Hocking Coal Co.	Monroe
May	7	A. Faro	Miner	Leg broken	Fall of bony coal	Smoky Hollow Coal Co.	Monroe
May	21	J. Argentire	Miner	Arm broken	Fall of slate	Manufacturers C. & C. Co.	Appanoose
May	23	J. Garrington	Miner	Ankle broken	Fall of coal	Smoky Hollow Coal Co.	Monroe
June	18	Wm. Sparks	Miner	Leg broken	Fall of coal	Mystic Block Coal Co.	Appanoose

FATAL ACCIDENTS IN DISTRICT No. 1, JULY 1, 1907—JUNE 30, 1908.

Date		Name of Deceased	Occupation	Cause of Death	Employed by—	County
1907.						
August	9	R. Gault	Topman	Struck by cage	Centerville Block Coal Co.	Appanoose
August	22	H. E. Holland	Tracklayer	Fall of slate	Wapello Coal Co.	Monroe
September	24	John Benson	Timberman	Fall of slate	Phillips Fuel Co.	Monroe
October	11	Fred Baker	Miner	Fall of coal	Peerless Coal Co.	Appanoose
December	4	G. L. Murrow	Driver	Fall of slate	Wapello Coal Co.	Monroe
December	14	H. E. Skeels	Shot examiner	Fall of slate	Wapello Coal Co.	Monroe
December	19	H. S. Badgley	Shot firer	Afterdamp	Hocking Coal Co.	Monroe
1908.						
January	14	J. Del Ponte	Miner	Fall of slate	Anchor Coal Co.	Appanoose
January	17	A. Wester	Laborer	Fell down shaft	Hocking Coal Co.	Monroe
February	8	J. A. Homner	Shot firer	Afterdamp	Hocking Coal Co.	Monroe
February	21	A. Arnold	Miner	Fall of slate	Pearson & Maley	Page
February	21	J. Brewer	Miner	Fall of slate	Pearson & Maley	Page
February	28	D. Meadows	Miner	Fall of slate	Smoky Hollow Coal Co.	Monroe
March	10	F. Medena	Miner	Fall of coal	Peerless Coal Co.	Appanoose
March	30	C. R. Deaver	Driver	Run over by car	Smoky Hollow Coal Co.	Monroe

SERIOUS ACCIDENTS IN DISTRICT No. 1, JULY 1, 1907—JUNE 30, 1908.

Date		Name of Injured	Occupation	Character of Injury	Cause of Injury	Employed by—	County
1907.							
July	9	Wm. Bowen	Miner	Head and face injured	Fall of slate	Wapello Coal Co.	Monroe
July	—	G. Uttstrom	Roadman	Arm broken	Fall of slate	Dewey Coal Co.	Appanoose
July	10	E. Anderson	Driver	Leg broken	Caught under car	Wapello Coal Co.	Monroe
August	10	M. Morris	Miner	Back injured	Fall of coal	Star Coal Co.	Appanoose
August	10	J. Forsen	Miner	Face cut	Fall of slate	Wapello Coal Co.	Monroe
August	14	J. Lawrence	Tracklayer	Eye injured	Struck by spike	Wapello Coal Co.	Monroe
August	20	S. Richardson	Miner	Back injured	Fall of slate	Smoky Hollow Coal Co.	Monroe
August	24	H. Calvert	Miner	Legs broken	Fall of slate	Phillips Fuel Co.	Monroe
August	24	S. Ambury	Oiler	Leg broken	Caught by car	Numa Block Coal Co.	Wayne
August	26	Geo. Jones	Mine forem'n	Leg broken	Caught between cars	Numa Block Coal Co.	Wayne
September	13	S. Bailey	Miner	Arm broken	Fall of coal	Mendota Coal & Mining Co.	Appanoose
September	14	F. Anderson	Spragger	Finger cut off	Run over by car	Wapello Coal Co.	Monroe
September	16	D. T. Evans	Miner	Ribs broken	Fall of slate	Cleveland Coal Co.	Lucas
September	23	B. Simonetta	Miner	Leg broken	Fall of slate	Smoky Hollow Coal Co.	Monroe
October	8	F. Anderson	Spragger	Ear Cut off	Caught by car	Wapello Coal Co.	Monroe
October	9	W. Vernator	Driver	Bone right arm broken	Caught between cars	Smoky Hollow Coal Co.	Monroe
October	12	R. Powell	Miner	Leg broken	Fall of slate	Wapello Coal Co.	Monroe
October	15	J. Facenda	Miner	Small bone in leg broken	Fall of coal	Manufacturers C. & C. Co.	Appanoose
October	23	H. Horn	Driver	Arm broken	Caught between car and timber	Smoky Hollow Coal Co.	Monroe
1907.							
October	30	R. C. Mefford	Driver	Knee injured	Kicked by mule	Smoky Hollow Coal Co.	Monroe
November	13	J. Champ	Miner	Leg broken	Fall of slate	Smoky Hollow Coal Co.	Monroe
December	10	O. Rivers	Driver	Ankle badly injured	Caught by car	Wapello Coal Co.	Monroe
December	16	E. Bialto	Miner	Arm and face burned	Powder exploded	Smoky Hollow Coal Co.	Monroe
1908.							
January	29	W. Neighbour	Trapper	Foot injured	Run over by car	Wapello Coal Co.	Monroe
February	8	J. Welch	Miner	Foot injured	Fall of coal	Wapello Coal Co.	Monroe
February	10	P. Pollick	Miner	Leg broken	Fall of coal	Prairie Block Coal Co.	Appanoose
February	14	M. H. Adey	Roadman	Leg broken	Caught between cars	Hocking Coal Co.	Monroe
February	17	J. Hunt	Miner	Foot fractured	Fall of coal	Smoky Hollow Coal Co.	Monroe
February	20	R. Bailey	Miner	Leg broken	Fall of coal	Peacock Coal Co.	Appanoose
February	28	H. Carwin	Miner	Back injured	Fall of slate	Wapello Coal Co.	Monroe
March	16	J. Raselvick	Miner	Collar bone broken	Fall of coal	Prairie Block Coal Co.	Appanoose
March	19	S. Carlo	Miner	Bone in left foot broken	Caught by car	Smoky Hollow Coal Co.	Monroe
March	21	F. I. Dixon	Miner	Leg broken	Fall of slate	Cleveland Coal Co.	Lucas
May	12	Geo. Taylor	Miner	Arm broken	Fall of slate	Wapello Coal Co.	Monroe
June	19	C. Utterback	Driver	Back badly bruised	Fall of slate	Smoky Hollow Coal Co.	Monroe
June	19	D. Williams	Driver	Right arm lacerated	Caught by car	Smoky Hollow Coal Co.	Monroe
June	20	O. Duskin	Miner	Leg broken	Fall of coal	Numa Block Coal Co.	Wayne

FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 1, JULY 1, 1906—JUNE 30, 1907, WITH RELATION TO COAL PRODUCED AND NUMBER OF EMPLOYES.

County	Number of Accidents		Number of tons of coal produced	Tons of Coal Produced for Each Accident		Number of employes	Number of Employes for Each Accident	
	Fatal	Serious		Fatal	Serious		Fatal	Serious
Appanoose	3	11	1,157,967	385,989	105,270	3,888	1,296	353
Monroe (part)	4	20	1,346,297	336,574	67,315	2,053	513	102
Lucas			126,579			237		
Wayne	1		159,758	159,758		521	521	
Taylor			15,951			109		
Page			15,981			102		
Adams			20,490			178		
Totals	9	31	2,843,023	315,891	91,710	7,089	787	227

FATAL AND SERIOUS ACCIDENTS IN DISTRICT NO. 1, JULY 1, 1907—JUNE 30, 1908, WITH RELATION TO COAL PRODUCED AND NUMBER OF EMPLOYES.

County	Number of Accidents		Number of tons of coal produced	Tons of Coal Produced for Each Accident		Number of employes	Number of Employes for Each Accident	
	Fatal	Serious		Fatal	Serious		Fatal	Serious
Appanoose	4	7	1,107,806	276,951	158,258	4,026	1,006	575
Monroe (part)	9	25	1,301,374	144,597	52,055	2,076	231	83
Lucas		2	74,288		37,144	173		86
Wayne		3	124,465		41,488	471		157
Taylor			13,861			79		
Page	2		14,045	7,022		96	48	
Adams			17,760			148		
Totals	15	37	2,653,599	176,906	71,718	7,069	471	190

FATAL ACCIDENTS IN DISTRICT NO. 1 FOR THE LAST SIX YEARS, THEIR RELATION TO NUMBER OF EMPLOYES, AND FATALITY RATE PER 1,000 MEN EMPLOYED.

Date	Number of fatal accidents	Number of employes	Number of employes per death	Fatality rate per 1,000 men employed
July 1, 1902—June 30, 1903	11	6,359	578	1.73
July 1, 1903—June 30, 1904	13	6,796	523	1.9
July 1, 1904—June 30, 1905	7	7,250	1,036	.96
July 1, 1905—June 30, 1906	16	7,075	442	2.26
July 1, 1906—June 30, 1907	9	7,089	787	1.27
July 1, 1907—June 30, 1908	15	7,069	471	2.12

NATIONAL ASSISTANCE IN THE PREVENTION OF MINE ACCIDENTS.

In the report of 1905 I called attention to the advisability and need of national assistance in devising adequate means to lessen the number of accidents annually occurring in the mines of the United States and furnishing reliable information and advice regarding the future prevention of mine explosions. I am pleased to state that the Technologic Branch of the United States Geological Survey is about to take up this important work, as will be seen by the following article recently published in the "Black Diamond":

EXPERIMENTAL STATION.

Washington, D. C., July 23.—The United States Government, within the next few weeks, will begin a series of scientific investigations into the cause of disasters in American coal mines. By August 1st, the United States Geological Survey will have a complete experimental station in operation on the grounds of the arsenal in Pittsburgh, Pa.

Before the Hemenway amendment, making an appropriation of $150,000 for this work, became a law, survey officials were busy making tentative plans for the station. This prompt action was considered necessary because the terrible mortality record of last year is being continued into this year, although 1907 was considered an unusual one, 3,200 being killed in the coal mines as against 2,061 the year before. From unofficial estimates it appears that sixteen men have been killed or injured each work day of the year.

At the Pittsburgh experimental station, tests of the various dynamites and powders will be made with a view to accurately determine their safety in the presence of firedamp and coal dust. Explosives of all sorts will be hurled by means of a mortar into a mammoth boilerplate cylinder which has previously been filled with gas, and the effects will be carefully noted. If ignition fails after severe tests, the use of these explosives will be urged upon the mine owners.

That part of the experimental station in which the explosives are to be tested will be in the form of a cylinder, 100 feet long and 6 feet in diameter, lying on the ground. An explosive mixture of firedamp and air in one case or coal dust and air in another, will be pumped into the cylinder and the explosive to be tested will be shot into it from one end by a big steel mortar so that the flame and products of combustion will go right into the explosive.

The cylinder in which the explosions are to occur, are to be made of heavy boiler plate. Safety valves will be placed all along the top and will be left unfastened in such manner that whenever there is an explosion the valves will fly open upon their hinges. A series of port holes on the sides, covered with one-half inch glass will enable those conducting the experiments to witness the explosions from the observation house, sixty feet away. The steel mortar which will hurl the explosives into the cylinder will be fired by electricity from the observation house which is to be parallel with the cylinder itself.

While these tests are being conducted, operators and miners will be invited to be present. In order that they will be able to see clearly the explosions of gas or dust, a piece of oil paper will be placed across the face of one of the safety valves with a piece of gun-cotton suspended about six inches away. When an explosion occurs, the flames will burn the oil paper and ignite the gun-cotton.

In connection with the experimental station there will be a miniature mine with drifts, headings, rooms and ladders. This place will be filled with smoke or gas and experiments will be made with apparatus capable of sustaining life in these vapors.

The experimental work will be in direct charge of Joseph A. Holmes, expert in charge of the Technologic branch of the United States Geological Survey, assisted by H. M. Wilson, chief engineer. The station itself will be in charge of Clarence Hall, the Government's explosive expert, with Dr. Walter O. Snelling as explosive chemist.

MINE INSPECTORS' INSTITUTE OF THE UNITED STATES OF AMERICA.

At Indianapolis, Indiana, on June 9th to 12th, the organization of the Mine Inspectors' Institute of the United States of America was effected.

About fifty mine inspectors, representing the states of Pennsylvania, Ohio, West Virginia, Indiana, Illinois, Iowa, Missouri, Oklahoma and Montana and a representative of the United States government were present.

The aim of the organization is to increase the effectiveness of the inspection service in this country, to devise means for greater safety in mining and to assist toward the better conservation of the country's fuel supply by suggesting such improvements in the prevailing mining practice as will tend to reduce the present enormous waste in mining coal.

Of course only future events can show whether or not this organization will be of material benefit to the coal mining industry of this country, but if individual endeavor and the earnest and intelligent desire for co-operation of men of practical and technical training, especially qualified by years of experience in their line of work, can produce good results, the organization will prove a success and a benefit to this country.

The work of the Indianapolis meeting was largely of a preliminary nature to put the organization on an effective working basis. On the last day of the conference a number of papers were read, principally relating to mine explosions. These papers will be printed in the proceedings of the conference and their subject-matter will be discussed at the next meeting, which will be held in Scranton, Pennsylvania, commencing June 8, 1909. Through the courtesy of my colleagues I had the honor to represent Iowa at the Indianapolis meeting.

I had the privilege of reading the following paper on dust explosions:

DUST EXPLOSIONS IN NON-GASEOUS MINES.

The recent explosions in mines in West Virginia, Pennsylvania and Alabama again emphasize the pressing need of a thorough investigation of the initial causes of these disasters by the best talent in the United States available for such work.

It is probable that an investigation of mine explosions will soon be undertaken by the technologic branch of the United States Geological Survey, and there is reason for the belief that the experts conducting the investigation and carrying on the experimental work will be able to provide the proper solution for the practical elimination of mine explosions. They will be in possession of the results of the extensive investigations of commissions of experts in the European coal mining countries, they will have the advantage of further discoveries relating to explosions, since these commissions made their reports, and they will have the additional advantage of unequalled opportunities for research and successful work afforded by the widely spread coal fields of the United States with their varying conditions. They will command the valuable assistance of the mining bureaus of the different states and undoubtedly will have the benefit of suggestions and views of all, who have investigated the subject of mine explosions in this country. It is to be hoped that these experts will soon be at work.

The following article deals only with so-called dust explosions in non-gaseous mines (mines free from fire-damp) and is made specific in this direction, in order to bring out certain features, peculiar to them, and to avoid possible confusion and misunderstanding.

If the reliable records of all dust explosions that ever occurred in non-gaseous mines were available and could be examined, I believe they would disclose the fact that these explosions invariably occurred in satisfactorily ventilated mines, or that they at least originated in the satisfactorily ventilated parts of them. In my investigations I have found this to be so universally the case that it seems to justify the statement that the occurrence of a dust explosion in a non-gaseous mine may be considered positive proof that the mine, or that part of it where the explosion originated, was efficiently ventilated. In comparing the actions and effects of scores of dust explosions, I have found that the most extensive and the most destructive occurred in mines where the ventilation was exceptionally good and the air current of great volume, and yet, in the face of such proof, readily obtainable by all who desire to look into this feature, there are men who still insist that dust explosions can be eliminated by increasing the air volume going through the mines. The three Pennsylvania mine inspectors, who investigated the Monongah explosion, were entirely right in stating in their report that, "powerful fans and the circulating of large volumes of air will not prevent dust explosions." What more convincing proof, that these advocates of increased ventilation are mistaken, can be submitted than the fact, that dust explosions in non-gaseous mines almost altogether occur during the colder months of the year, when mine ventilation reaches its greatest efficiency?

This brings up the very interesting question as to why dust explosions in non-gaseous mines are almost entirely confined in their occurrence to the colder months of the year. It is an important question and

it has possibly not received the attention it deserves. The most general explanation given to account for this peculiar feature is that the mines in the winter season are very dusty and dry, due to the constant absorption of moisture by the cold air entering and traveling through them. It is assumed that the dry dust particles are easily raised by even a slight commotion in the air current and thus furnish the ready and highly inflammable material to extend the small flame from a comparatively insignificant local explosion to tremendous proportions. There may be some truth in this explanation, but I believe I shall be able to show further on that its full acceptance is unwarranted.

I do not underestimate the influence of coal dust, containing a high amount of volatile matter, in increasing the scope and magnitude of an explosion. I fully appreciate the fact that dust of that character, moist or dry, is an extremely dangerous material in the presence of heat and flame, yet I am of the opinion, paradoxical as it may appear, that coal dust should not be considered the prime factor in a dust explosion in a non-gaseous mine. Six years ago I made the statement in the report on "Mine explosions in Iowa," that "Next to the explosion of powder itself, the most influential factor in these so-called 'dust' explosions is pure air near its place of origin. It is the energizing element, and without it disastrous explosions in Iowa mines would become an impossibility. Shots may blow the tamping, and dust may be present in abundance, but both will remain comparatively harmless if the mine air is impure." Nothing has occurred since I made this statement to change my views in this respect, but the result of continued observations and investigations during the last six years warrant me in reducing the above general statement to the more specific one, that before a dust explosion of considerable extent can result, the air current in the locality affected by it must not only be fairly pure as a whole, but it must be especially pure and free from vitiation in its lowest stratum or the part travelling close to the floor of the mine workings, for as will be explained later on, from that stratum mainly must come the air supply necessary to sustain its force.

A very large number of dust explosions have occurred in non-gaseous mines in the United States in the past, yet the most diligent search has failed to show any authentic record that even one of this great number ever occurred in the summer time. The explosion record of Iowa, covering the last twenty years, shows that all the explosions in that state during that time occurred from October to March, the earliest occurring on October 22d, the latest on March 11th, and more than half of them (ten) during the months of January and February. It is well known that no fire-damp was ever found in the Iowa mines.

We know that a greater degree of moisture prevails in the mines in in the summer than at any other time of the year, yet that fact alone surely cannot account satisfactorily for the persistent absence of these explosions during the month of June, July and August, when it has been clearly established that the presence of considerable moisture in the mines in the winter has failed to prevent their occurrence. Considering all this and recognizing the fact that blown out shots, etc. (the primary cause of explosions in non-gaseous mines) are as frequent in one season as in another, what is there left but the conclusion that the status of the mine air must have a potent influence in the promotion or

prevention of these explosions? Their existence depends on combustion, and combustion depends not only on the availability and kind of the combustible material, but also to a very considerable extent on the volume and condition of the air. The mine air is in its purest state in the winter and the pronounced natural ventilation prevailing in the mines at that time of the year not only increases the air volume, but adds materially to the purity of its lowest stratum. In the summer the air volume going through the mine is generally less than in the winter, the supply of oxygen is appreciably decreased, the air is less pure and on account of the almost entire absence of natural ventilation the lowest stratum of the current, especially in the live workings, contains the greatest amount of vitiation. The first condition readily promotes combustion, the latter retards it; the one makes an explosion possible, the other prevents it.

Natural laws are fixed laws and cannot be changed to suit the occasion. If we open the door of a heated room in the winter time we find that the heated air flows from the room through the upper portion of the door, while the cold outside air enters the room through the lower portion of the opening, the velocity of the entering air being increased or decreased according to the difference of temperature in the room and outside. We know that in order to promote rapid combustion of fuel and quick generation of heat in the fire-box of a boiler the air must be drawn from below through the bars of the grate into the fire, and we further know that the purer the air so admitted and the higher its amount of oxygen, the better and more rapid the combustion, other conditions remaining the same. This is always the case, for the actions and behavior of the elements are governed by nature's unchangeable law, a law that even the most violent mine explosion cannot set aside.

Recognizing the truth of the above, we may then reasonably conclude that at the very beginning as soon as a sufficient amount of heat has been developed by a blown out shot or through some other cause, to permit this heat to exert its influence on its surroundings, there will be an inrush of air along the mine floor toward and under the heat wave and flame, this inrush carrying with it the dust in its path, injecting the dangerous fuel into the heat and flame above providing the necessary oxygen for its combustion and thus starting the explosion on its way. We may further reasonably conclude that this inrush of air and dust along the mine floor will continue in a more or less marked degree, during the entire course of the explosion.

It may be pointed out, however, that the very great pressure developed by an explosion will make any air movement from an outward direction towards it impossible. At the first glance this may appear a plausible proposition, but a closer examination of the situation will readily establish its fallacy. We know that the exceedingly high pressure preceding the heat and flame area of an explosion is met by a correspondingly high resistance. We also know that the direction of air movements is determined by difference in pressure and temperature. Even during the progress of an explosion the air, in the territory it affects, will move from the point of highest pressure towards points of lowest pressure, and from the points of lowest to points of higher temperature. The point of highest pressure in an explosion may be located just in advance of the heat

and flame, with the points of lower pressure ahead and to the rear, while the lowest degree of temperature is found nearer the floor of the mine passages. Under the circumstances, and in conformity with natural law, an inrush of air along the lower portion of the mine passages towards and into the heat area of an explosion is, therefore, inevitable.

The theory that the flame of an explosion projects itself into the dust ahead of it, and thus extends the explosion's scope, appears to be extremely faulty. It suggests a sort of stationary condition of the suspended dust, or otherwise its acceptance must be based on the assumption that the explosion's flame moves faster than the dust, or, in other words, faster than its own explosive force. It would seem that argument is not required to show the apparent impossibility of it. If it is assumed that dust and flame move with about equal velocity, and that there is no inrush of air and dust, what chance will there be for the extension of the explosion, with the fuel and the air to burn it receding with a speed commensurate to that of the advancing flame?

The existence of this inrush of air during the progress of a dust explosion rests not on theory alone. If any non-gaseous mine, just after the occurrence of a dust explosion in it, is examined with the view of discovering evidence of the existence of this inrush, it will be found that there are three features, present in a more or less marked degree, which still furnish reasonable proof that the inrush of air along the floor of the mine passage actually existed during the explosion's progress.

The first feature is the presence of an abnormally high per cent of ash in the dust particles exposed to the heat and flame of the explosion. For instance, the samples of coal and dust taken from the Winter Quarters Mine No. 4, at Scofield, Utah, after the explosion gave the following results:

Analysis of coal unaffected by the explosion:

Water	3.33	per cent
Volatile matter	42.67	per cent
Fixed carbon	49.06	per cent
Ash	4.94	per cent
Total	100.00	per cent

Analysis of soot from face of main entry:

Water	1.74	per cent
Volatile matter	18.72	per cent
Fixed carbon	45.30	per cent
Ash	34.24	per cent
Total	100.00	per cent

The materials consist of soot mixed with partially coked coal and foreign mineral matter.

Analysis of material on post:

Water	1.69	per cent
Volatile matter	17.77	per cent
Fixed carbon	47.76	per cent
Ash	32.78	per cent
Total	100.00	per cent

Material is largely soot, inclosing particles of coal, coke and mineral matter.

This shows that most of the charred and coked material comes from the mixed accumulation of coal dust and other mineral matter, generally found on the mine floor, and while the presence of the high per cent of ash does not by itself establish the existence of the inrush of air, it fairly indicates the source of the dust supply for the explosion and that is of importance when considered in connection with the other features.

The second feature consists of the sometimes quite large deposits of soot, charred and coked dust, found adhering to the sides or ends of cars, timbers, tool boxes, etc., facing away from the direction from which the explosion came. The most generally accepted explanation of this peculiar feature is based on the assumption that after the explosion has run its course in one direction, it reverses itself and returns in its original path in the opposite direction, and that the deposits of soot and coked material above mentioned, are due to this retrograde movement.

When we know that a dust explosion in a non-gaseous mine depends for its existence and extension on the presence of a plentiful supply of pure air, when we have the well established proof that such explosion, even in its outward course, will avoid the parts of the mine containing vitiated air, and when we then take into account the foul and greatly diminished air supply left in the wake of the explosion, we must conclude that a reverse dust explosion is impossible. Men have been rescued after explosions in mines in this state, who were right in their course, and a number of them were burned so severely that they died on account of their injuries shortly after their rescue, yet none of these men experienced a reverse explosion either with or without flame. Is there a more reasonable explanation for the presence of these dust deposits on the sides or ends of cars, tool boxes, etc., facing away from the explosion, than the acceptance of the existence of the inrush of air and dust along the mine floor towards, into and beyond, the explosion's heat and flame area? It is a significant fact that these dust deposits are heaviest on the parts of cars, boxes, etc., nearest the mine floor.

The third feature presents very strong evidence of the existence of this inrush of air along the mine floor. The investigations of dust explosions of the more violent type have developed unmistakable signs in parts of the mine of the presence of two forces that had been exerted in opposite directions. The twisted rails and the fragments of cars, etc., scattered in different directions not only show that these forces moved in opposite directions, but that they were moved in opposite directions at the same time. The latter condition must have existed, for there is no other explanation to account for the plain evidence of the existence of the twisting or cyclonic force to which the fragments of cars, car irons, axles, etc., had been subjected.

As this display of forces moving in opposite directions is less noticeable in the smaller explosions, it appears that the velocity and power of the inrush of air is proportionate in a measure to the speed and intensity of the explosion itself.

The unchecked frequency of dust explosions in non-gaseous mines in recent years, and right up to the present time, shows that the remedies for their prevention, so far proposed and tried in this country, have proved entirely inadequate. I believe the principal reason, to account for the unsatisfactory and disappointing results in this respect, is that our

efforts so far have been mainly in the wrong direction. We have been endeavoring to provide remedies to subdue the effects of these explosions when we should have tried to get at the root of the evil by first attempting to eradicate their primary cause.

If it is good strategy in war to find the point of greatest weakness in the enemy's lines and then attack that point, so it is good sense that in our efforts to stop explosions, we should determine first their weakest spot, and then concentrate our attack in that direction. All attempts to prevent the occurrence of dust explosions in non-gaseous mines by increasing the air volume in them have failed and will continue to fail, for a conflagration cannot be subdued by an increased admission of air. If we desire to accomplish prevention through the manipulation of the mine air, we must go to the other extreme and make it so foul that it cannot possibly sustain combustion. A year or two ago somebody proposed as a preventive measure the filling of a mine just before firing time with black damp, artificially induced, the shots to be fired by electricity and the black damp afterwards to be removed by brisk ventilation. Dust explosions could be prevented in that manner, but the remedy is useless, because its practical application is out of the question.

The efforts to prevent these explosions through the partial removal of the dry dust from the mine workings and through sprinkling have proved also unsuccessful. Sprinkling the dust, even if the work is done systematically and with care, cannot be relied upon as a preventive; actual experience has proved this fact. The dust tests made in the presence of the jury which investigated the Monogah disaster, showed that the moist condition of the dust can have little, if any, influence in checking the explosion's progress. In any event, and especially if the views expressed in this article regarding the inrush of air at the beginning of or during an explosion are accepted, it may be definitely stated that nothing short of complete inundation of the dust on the floor of the mine workings promises to give a reasonable measure of protection, but the impossibility or extreme difficulty of accomplishing this in naturally dry mines makes the remedy in such mines unavailable.

But there is a weak spot in the makeup of these explosions, and, I believe, a concentrated and determined attack on it will demonstrate that there is a practical way of prevention. That weak spot is the use of flaming explosives, especially blasting powder. Their use has been primarily responsible for all explosions that have occurred in non-gaseous mines in the past, and it should and can be discontinued in all mines where the coal is high in volatile matter and the dust therefore a dangerous element. The removal of the main cause, together with such other additional safeguards as may be provided, will certainly make the future occurrence of a dust explosion in a non-gaseous mine a very remote possibility.

APPANOOSE COUNTY.

During the year ending June 30, 1907, sixty-four mines having railroad connection and twenty-nine mines without such connection were operated in Appanoose county. Two small mines near Mystic were abandoned during the year, leaving the number of mines for the year ending June 30, 1908, sixty-two with railroad connection and twenty-nine without. The

latter are operated largely to supply the home demand for coal, although a number of them ship part of their output. All the mines are working the same coal seam, averaging about thirty inches in thickness. The coal is mined by the longwall and the room and pillar method. Of the sixty-two shipping mines, forty-three use the former method and nineteen the latter.

During the year ending June 30, 1907, the mines of Appanoose county furnished employment to 3,888 persons and the coal production amounted to 1,157,967 tons, exceeding the production of the previous year by over 100,000 tons. The record of a steady increase in tonnage in recent years was not maintained, however, during the year ending June 30, 1908, for in that year the coal production of the county amounted to 1,107,806 tons, a decrease from the output of the previous year of 50,161 tons. A large number of the mines worked only a little more than half time, and but a few exceeded two-thirds time by a narrow margin. This shows that the yearly coal production of Appanoose county could be readily and materially increased by working the mines full time and without the increase in the present number of mines or the addition of extra equipment.

As in former years in point of safety the Appanoose county mines continue to compare decidedly favorably with other mining localities in this state or outside of it. The yearly fatality rate during the last two years was less than one for each thousand men employed.

As far as mine ventilation is concerned it can be said that the great majority of the mines are in fairly satisfactory condition in this respect, and that there is a somewhat slow but steady improvement in this direction noticeable in nearly all of them.

SUMMARY OF CONDITIONS IN THE APPANOOSE COUNTY MINES.

Scandinavian Coal Company, No. 2, located at Plano. The method of working this mine has been changed from room and pillar to longwall, and the results have been satisfactory. It is unfortunate that on account of the inadequate demand for coal, this valuable property can only be operated on a very limited scale. The mine and its equipments are in satisfactory condition.

Mystic Block Coal Company No. 3. A slope mine located west of Brazil. It is not extensively operated, less than twenty men being employed. It is in fair condition.

Walnut Block Coal Company, located at Brazil. Some work has been done on the main road and the mine has been sufficiently improved so a larger working force can be employed than before.

Phoenix Coal Company. Mine located at Brazil. It is worked now on the longwall system and is in fair condition.

Centerville Block Coal Company No. 5. A slope mine at Brazil, ventilated by a furnace. Some difficulty has been experienced to ventilate it properly and provisions will be made to bring about an improvement in that direction.

Peacock Coal Company. A slope mine located at Brazil. It is in good condition.

Oriental Coal Company No. 1. A slope mine located southeast of Brazil. *Furnace* ventilation. The mine is in fair condition.

Perfection Block Coal Company. A slope mine south of Brazil. Better outside equipments have been provided and the mine has been somewhat improved.

Sunshine Coal Company. A shaft mine three miles west of Centerville. It is now worked by the longwall method. The equipments are in good order. A fan has been erected recently and the ventilation of the mine is satisfactory. The mine is in good condition.

Centerville Block Coal Company No. 3. Mine in fair condition as to equipments. Ventilation not satisfactory.

Anchor Coal Company No. 1. A shaft mine located south of Centerville. As it proved difficult to ventilate the north workings satisfactorily under existing conditions, the management concluded to stop them. It is probable that a shallow shaft will be sunk to facilitate the ventilation of the south workings. The mine equipments are in good order.

Scandinavian Coal Company No. 1. The ventilation of the mine has been improved. Equipment and safety appliances satisfactory.

Dewey Coal Company. A shaft mine located east of Centerville. On the 5th of February, 1908, the engine house and boiler room were destroyed by fire. Substantial buildings have been erected and a first motion hoisting engine has taken the place of the geared engine formerly in use. In order to better the ventilation and facilitate the handling of the coal output, the system of working the mine should be changed. Safety appliances satisfactory.

Consolidated Block Coal Company. A slope mine located southwest of Cincinnati. It is now ventilated by a fan and with proper care there should be no difficulty about keeping the mine in satisfactory condition.

Mendota Coal & Mining Company, Albert Mine. A shaft mine located west of Cincinnati. The method of working the mine has been changed from longwall to room and pillar. It is in satisfactory condition.

Armstrong Coal Company. A shaft mine located west of Cincinnati. The mine has now railroad connection and is in good condition. A fan will soon be erected.

Mendota Coal & Mining Company, Appanoose Mine. A shaft mine located at Cincinnati. The mine is not worked extensively and is in satisfactory condition.

Domestic Coal Company. A shaft mine located north of Cincinnati. It has no railroad connection, but considerable coal is shipped. The mine is in satisfactory condition.

Thistle Coal Company No. 1. A shaft mine east of Cincinnati. It was not worked last year, but may be started up again in the near future.

Thistle Coal Company No. 2. A shaft mine east of Cincinnati. Some work has been done to improve its ventilation.

Thistle Coal Company No. 3. A shaft mine east of Cincinnati. It is in satisfactory condition.

Exline Coal Company No. 1. A shaft mine located west of Exline. In fair condition.

Exline Coal Company No. 2. A shaft mine to the east of No. 1, and connected with the latter. The workable territory of the mine is at present limited on account of an extensive fault to the south and east. At the last inspection the ventilation was unsatisfactory and provisions were made for its improvement.

Iowa Block Coal Company. A shaft mine located at Exline. It is in good condition.

White Oak Coal Company. A shaft mine without railroad connection, located north of Exline. It is in fair condition.

C. B. and K. C. Coal Company has acquired the Royal mine, east of Exline. The mine and equipments have been greatly improved and work in that direction will be continued.

Centerville Block Coal Company No. 2. A shaft mine located at Numa. Additional territory has been acquired by the management adjoining its holdings on the west. It has been difficult to develop the workings on the west, but satisfactory progress has been made. The ventilation of the mine has been appreciably improved. Work to reach an old shaft to the north of the mine is still going on.

Numa Block Coal Company No. 1. A shaft mine at Numa. It produced more coal last year than any other mine in Appanoose county, and is in satisfactory condition.

Prairie Block Coal Company. A shaft mine four miles south of Centerville. In fair condition.

Anchor Coal Company No. 3. A shaft mine located at Shawville. The hoisting apparatus has been improved and the mine is in fair condition.

Anchor Coal Company No. 2. A shaft mine located north of No. 3. The ventilation of the east workings was unsatisfactory, but the difficulty has been overcome. The method of working the mine should be changed in order to improve the ventilation in the future.

Carbon Block Coal Company. A shaft mine south of Centerville, formerly operated by the Manufacturers Coal and Coke Company. The ventilation in parts of the mine was unsatisfactory, but the necessary openings have been made to improve the situation. The mine is now worked on the longwall plan and is in fair condition.

Center Coal Company. A shaft mine south of Centerville. The tipple has been raised and improved, equipments are in good order, and the mine is in satisfactory condition.

Centerville Block Coal Company No. 1. A shaft mine east of Centerville. An additional air shaft has recently been completed and a fan will be erected at an early date.

Centerville Block Coal Company No. 10. A shaft mine located east of No. 1 and connected with it. New track scales have been put in and other outside improvements have been made. The mine is in fair condition. Arrangements have been made to assure the future satisfactory ventilation of the mine.

Centerville Block Coal Company No. 9. A shaft mine west of Centerville. It is in fair condition.

Rosebrook Coal Company. A new shaft mine located at Rosebrook on the Iowa Central Railroad. The second opening has been made, and other improvements will soon be under way. The mine is in satisfactory condition.

Manufacturers Coal and Coke Company No. 10. A slope mine with its opening in Missouri. But little work was done in this mine last year. The bottom of slope was ordered timbered and this work has been done. The workings in Iowa are in fair condition.

Consumers Coal Company. A shaft mine located at Jerome. It is in good condition.

Big Jo Coal Company No. 1. A shaft mine located at Harkes. The stairway in the escape shaft was ordered strengthened. The ventilation in some parts of the mine was not satisfactory, but conditions in this respect have been improved.

Big Jo Coal Company No. 2. A shaft mine located northeast of No. 1, and operated by the Big Jo Coal Company under lease. This mine needs an additional air shaft and the management has been advised to that effect.

Mystic Block Coal Company No. 22. A shaft mine located at Diamond. Considerable difficulty was experienced to get the escape road in available condition. At the last inspection it was found in fair condition. The east and west workings should be connected as soon as possible, in order to improve the ventilation of the mine.

Peerless Coal Company No. 5. A shaft mine west of Mystic. Although the mine is ventilated by the use of two furnaces, it requires considerable care to keep all its parts in satisfactory sanitary condition. It is probable that this difficulty will be overcome in the near future.

Egypt Coal Company. A drift mine located west of Mystic. It is very difficult under existing conditions to keep the mine satisfactorily ventilated. A new connection with the mine opening west will give temporary improvement. It is entirely probable that the system of ventilating this mine will have to be changed next year.

Peerless Coal Company No. 1. A drift mine located at Mystic. It is connected with Mine No. 2, operated by the same company, and is ventilated by No. 2 fan. The mine is in satisfactory condition.

Peerless Coal Company No. 2. A shaft mine located west of No. 1. Fan ventilation has taken the place of furnace ventilation, and the sanitary condition of the mine is now very satisfactory. The mine is in good condition.

Mystic Coal Company No. 1. A small slope mine west of Mystic. Only a few men are employed.

Mystic Coal Company No. 2. A shaft mine west of Mystic. It is in fair condition.

Mystic Coal Company No. 3. A slope mine west of No. 2 and connected with it. Ventilation provided by No. 2 fan. Mine in satisfactory condition.

Acken Coal Company No. 1. A slope mine west of Mystic. Workings in fair condition.

Acken Coal Company No. 2. A shaft mine west of No. 1 and connected with it. Both mines are ventilated by a fan located at No. 2. Mine in fair condition.

Mystic Block Coal Company No. 29. A shaft mine located at Mystic. It is in fair condition.

Peerless Coal Company No. 6. A drift mine at Mystic. In fair condition.

Mystic Block Coal Company No. 12. A slope mine east of Mystic. A shaft has been sunk and the slope will not be used much longer. Grading for the track leading to the shaft is about completed. The mine is in good condition.

Winnifred Coal Company. A slope mine east of Mystic. Tail rope haulage will be used to carry the coal to the tipple. Mine in fair condition.

Beggs Coal Company. A shaft mine east of Mystic. The mine is worked to a limited extent only.

Elgin and Barrett Coal Company. A slope mine east of Mystic. An additional air shaft must be sunk soon.

Inter-Ocean Coal Company. A shaft mine east of Mystic formerly operated by Orr Bros. Little work has been done at this mine during the last year. The mine will be considerably improved later on in order to work it on a more extensive scale.

Mystic Block Coal Company No. 5. A shaft mine located at Clarkdale. It is in good condition.

Fowler & Wilson Coal Company. A shaft mine at Rathbun, formerly operated by the Star Coal Company. The mine is in good condition.

Unity Block Coal Company. A slope mine located at Darbyville. It is probable that the mine will soon change ownership. If it does much needed improvements will be provided.

The local mines of Appanoose county were kept in reasonably safe condition during the last two years, and their sanitary condition was generally satisfactory.

MINES IN APPANOOSE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Scandinavian Coal Company	2	Plano	K. & W.	Shaft	Room and pillar	Steam	Fan
Mystic Block Coal Company	3	West of Brazil	K. & W.	Shaft	Room and pillar	Steam	Fan
Walnut Block Coal Company	----	Brazil	K. & W.	Slope	Long wall	Elect'y	Furnace
Phoenix Coal Company	----	Brazil	K. & W.	Drift	Long wall	Horse	Furnace
Centerville Block Coal Company	5	Brazil	K. & W.	Drift	Long wall	Steam	Furnace
Tipton Co-Operative Coal Company	----	Brazil	K. & W.	Slope	Long wall	Steam	Furnace
Peacock Coal Company	----	Brazil	K. & W.	Drift	Long wall	Horse	Furnace
Oriental Coal Company	1	South of Brazil	K. & W.	Drift	Long wall	Horse	Furnace
Oriental Coal Company	2	South of Brazil	K. & W.	Slope	Long wall	Steam	Furnace
Perfection Block Coal Company	----	1 mile southeast of Brazil	K. & W.	Slope	Long wall	Steam	Furnace
Sunshine Coal Company	----	3 miles west of Centerville	K. & W.	Shaft	Long wall	Steam	Fan
Centerville Block Coal Company	3	West of Centerville	K. & W. and Iowa Cent.	Shaft	Long wall	Steam	Fan
Anchor Coal Company	1	Centerville	K. & W.	Shaft	Room and pillar	Steam	Fan
Scandinavian Coal Company	1	Centerville	K. & W.	Shaft	Long wall	Steam	Fan
Dewey Coal Company	----	1½ miles southeast of Centerville	K. & W.	Shaft	Room and pillar	Steam	Fan
Cincinnati Coal and Mining Company	----	2 miles southwest of Cincinnati	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan
Consolidated Block Coal Company	----	1½ miles southwest of Cincinnati	C. B. & K. C.	Slope	Long wall	Horse	Furnace
Mendota Coal and Mining Company	2	West of Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan
Mendota Coal and Mining Company	1	Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan
Armstrong Coal Company	----	West of Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan
Thistle Coal Company	3	Southeast of Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan
Thistle Coal Company	1	1 mile east of Cincinnati	C. B. & K. C.	Shaft	Long wall	Steam	Fan
Thistle Coal Company	2	1½ miles east of Cincinnati	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan
Exline Coal Company	1	West of Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan
Exline Coal Company	2	West of Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan
Iowa Block Coal Company	----	Exline	C. B. & K. C.	Shaft	Room and pillar	Steam	Fan
C. B. & K. C. Coal Company	----	Northeast of Exline	C. B. & K. C.	Slope	Room and pillar	Steam	Furnace
Centerville Block Coal Company	9	West of Centerville	Iowa Cent.	Shaft	Room and pillar	Steam	Fan
Centerville Block Coal Company	2	Numa	C., R. I. & P.	Shaft	Long wall	Steam	Fan
Numa Block Coal Company	1	Numa	C., R. I. & P.	Slope	Long wall	Steam	Fan
Prairie Block Coal Company	----	4 miles south of Centerville	C., R. I. & P.	Shaft	Long wall	Steam	Fan
Anchor Coal Company	3	3 miles south of Centerville	C., R. I. & P.	Shaft	Long wall	Steam	Fan
Anchor Coal Company	2	2 miles south of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan
Center Coal Company	----	South of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan

MINES IN APPANOOSE COUNTY, THEIR LOCATION, ETC.—CONTINUED.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Centerville Block Coal Company	1	East of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan
Centerville Block Coal Company	10	East of Centerville	C., R. I. & P.	Shaft	Room and pillar	Steam	Fan
Consumers Coal Company	----	Jerome	C., M.& St. P	Shaft	Long wall	Steam	Fan
Big Jo Coal Company	1	1¾ miles east of Jerome	C., M.& St. P	Shaft	Long wall	Steam	Fan
Big Jo Coal Company	2	3 miles southwest of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Fan
Mystic Block Coal Company	22	Diamond	C., M.& St. P	Shaft	Long wall	Steam	Fan
Peerless Coal Company	5	West of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Furnace
Egypt Coal Company	----	West of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Furnace
Peerless Coal Company	1	Mystic	C., M.& St. P	Drift	Long wall	Horse	Fan
Acken Coal Company	1	West of Mystic	C., M.& St. P	Drift	Long wall	Steam	Fan
Acken Coal Company	2	West of Mystic	C., M.& St. P	Slope	Long wall	Horse	Fan
Peerless Coal Company	2	West of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Fan
Mystic Coal Company	2	West of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Fan
Mystic Coal Company	1	West of Mystic	C., M.& St. P	Shaft	Long wall	Mule	Furnace
Mystic Coal Company	3	West of Mystic	C., M.& St. P	Shaft	Long wall	Horse	Furnace
Mystic Block Coal Company	29	Mystic	C., M.& St. P	Slope	Long wall	Steam	Fan
Peerless Coal Company	6	Mystic	C., M.& St. P	Slope	Long wall	Steam	Furnace
Peerless Coal Company	3	Mystic	C., M.& St. P	Drift	Long wall	Horse	Furnace
Mystic Block Coal Company	12	Mystic	C., M.& St. P	Drift	Long wall	Horse	Furnace
Winnifred Coal Company	----	East of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Furnace
Beggs Coal Company	----	1½ miles east of Mystic	C., M.& St. P	Slope	Long wall	Horse	Furnace
Elgin & Barrett Coal Company	----	1½ miles east of Mystic	C., M.& St. P	Slope	Long wall	Steam	Furnace
Inter-Ocean Coal Company	----	1½ miles east of Mystic	C., M.& St. P	Shaft	Long wall	Steam	Fan
Mystic Block Coal Company	5	Clarkdale	C., M.& St. P	Slope	Long wall	Steam	Fan
Star Coal Company	----	Rathbun	C., M.& St. P	Shaft	Long wall	Steam	Fan
Unity Block Coal Company	----	Darbyville	C., M.& St. P	Slope	Long wall	Steam	Furnace
Carbon Block Coal Company	30	South of Centerville	C., R. I. & P.	Shaft	Long wall	Steam	Fan
Domestic Coal Company	----	Cincinnati	----	Shaft	Room and pillar	Horse	Furnace
White Oak Coal Company	----	North of Exline	----	Shaft	Room and pillar	Horse	Furnace
Ira A. Guinn	----	Coal City	----	Drift	Room and pillar	Horse	Furnace
Walnut Grove Coal Company	----	North of Numa	----	Drift	Long wall	Horse	Furnace
J. R. Wright	----	South of Centerville	----	Shaft	Room and pillar	Horse	Furnace
J. Sears	----	South of Centerville	----	Drift	Room and pillar	Horse	Furnace
Wm. Smith	----	South of Centerville	----	Shaft	Room and pillar	Horse	Furnace
Citizens Coal Company	----	Centerville	----	Slope	Room and pillar	Horse	Furnace

Happy Coal Company		Centerville		Shaft	Room and pillar	Horse	Furnace
White Oak Coal Company		Centerville		Shaft	Room and pillar	Horse	Furnace
Monitor Coal Company		Centerville		Shaft	Room and pillar	Horse	Furnace
Star Coal Company		North of Centerville		Slope	Room and pillar	Horse	Furnace
Trio Coal Company		Northeast of Centerville		Slope	Room and pillar	Horse	Furnace
Rock Valley Coal Company		North of Centerville		Shaft	Room and pillar	Horse	Furnace
John Schrum		North of Centerville		Shaft	Room and pillar	Horse	Furnace
John Koontz		Mystic		Shaft	Room and pillar	Horse	Furnace
Ed McConville		Centerville		Shaft	Long wall	Horse	Furnace
Centerville Block Coal Company	8	Coal City		Shaft	Room and pillar	Horse	Fan
Manufacturers Coal & Coke Company	10	Centerville	I. & St. L.	Shaft	Room and pillar	Steam	Fan

MONROE COUNTY (PART).

The coal industry in the part of Monroe county included in this district remains in prosperous condition. While the amount of coal produced during the year ending June 30, 1908, was not as great as that of the preceding year, it was considerably greater than the amount of coal produced in any year prior to that ending June 30, 1907. The principal mines worked on an average of 250 days during the year ending June 30, 1907, and 251 days during last year.

The Hilton mine operated by the Whitebreast Fuel Company was abandoned in 1907. The Albia Coal Company has opened a shaft mine south of Albia which is now in successful operation.

SUMMARY OF CONDITIONS OF THE MINES IN THE COUNTY.

Smoky Hollow Coal Company, Mine No. 6. A slope mine located about four miles southeast of Hynes. It is in satisfactory condition. As the mine has been extensively worked for a number of years the workings are now about one and one-half miles distant from the slope mouth. While the requirements of the law relating to escapes and traveling ways are fully complied with, it is very probable that an additional air and escape shaft will be sunk near the head of the workings. It is but due the management of the Smoky Hollow mines to say that it has always shown an earnest desire to put and keep its mines in reasonably safe and satisfactory sanitary condition. The results of this care are shown by the comparatively very low death rate and the great amount of coal produced for each life lost. During the last six years the average yearly death rate has been 1.3 per 1,000 persons employed, and the amount of coal produced for each life lost was 423,250 tons. This record will compare very favorably with the much quoted records of the mining countries in Europe.

Smoky Hollow Coal Company, Mine No. 7. A slope mine located west of No. 6. It is in satisfactory condition.

The Smoky Hollow Coal Company will probably prepare this year for the opening of No. 8 mine.

Wapello Coal Company, Mine No. 3. A shaft mine located west of Hiteman. It is probable that the north workings will be abandoned in the near future. The mine is in satisfactory condition.

Wapello Coal Company, Mine No. 4. A shaft mine located about three miles northwest of Hiteman. In good condition.

Mine No. 5 will probably be opened this year.

Phillips Fuel Company, Mine No. 6. Tailrope haulage has been installed. The ventilation of the mine has been improved. Considerable

care is required to keep the mine in satisfactory condition on account of a squeeze slowly spreading over a part of the mine.

Hocking Coal Company, Mine No. 2. A shaft mine located east of Hocking. The east side of the mine will soon be worked out and unless additional territory can be developed on the west side, the mine may be abandoned by next spring.

Hocking Coal Company, Mine No. 3. A shaft mine located east of No. 2. The mine is carefully managed and is in good condition.

Arrangements are under way to open Mine No. 4.

Albia Coal Company. A shaft mine located south of Albia. A new mine equipped in compliance with the law. Air and escape shaft completed. Ventilation by fan.

White Ash Coal Company. A slope mine located south of Avery. A tramway to Avery has been built and the management intends to use mechanical haulage to transport the coal to the railroad siding in Avery. The slope needs widening and re-timbering in parts. The workings are in satisfactory condition.

Star Coal Company. A shaft mine located northwest of Albia. The south workings of the mine were abandoned last winter on account of fire, and the efforts to reopen that part of the mine have so far proved futile. If the development of the west side turns out unsatisfactory the mine will probably be abandoned.

The National Union Coal Company is sinking a shaft southwest of Hiteman.

MINES IN MONROE COUNTY (PART) THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Wapello Coal Company	3	1 mile west of Hiteman	C., B. & Q.	Shaft	Room and pillar	Steam	Fan
Wapello Coal Company	4	3 miles northwest of Hiteman	C., B. & Q.	Shaft	Room and pillar	Steam	Fan
Smoky Hollow Coal Company	6	4 miles southeast of Hynes	C., B. & Q.	Slope	Room and pillar	Steam	Fan
Smoky Hollow Coal Company	7	4 miles southeast of Hynes	C., B. & Q.	Slope	Room and pillar	Steam	Fan
Phillips Fuel Company	6	West of Foster	C.M.& St. P.	Shaft	Room and pillar	Steam	Fan
Hocking Coal Company	2	Southeast of Hocking	Iowa Cent.	Shaft	Room and pillar	Steam	Fan
Hocking Coal Company	3	2½ miles south of Albia	Iowa Cent.	Shaft	Room and pillar	Steam	Fan
Star Coal Company	----	Northwest of Albia	C., B. & Q.	Shaft	Room and pillar	Steam	Fan
White Ash Coal Company	----	South of Avery	C., B. & Q.	Slope	Room and pillar	Steam	Fan
Albia Coal Company	----	South of Albia	Iowa Cent.	Shaft	Room and pillar	Steam	Fan

LUCAS COUNTY.

The prediction made in the 1906 report that in all probability there would be a future decrease in the amount of coal produced in Lucas county has been verified. Notwithstanding the re-opening of the Big Hill mine at Lucas the coal output of the county during the year ending June 30, 1907, was only 126,579 tons. There was still a further reduction during the year ending June 30, 1908, for in that year only 74,288 tons of coal were produced. This marked decrease was due to the closing down of the Big Hill mine in 1907, and to the abandonment of the Cleveland mine on April 1, 1908. This leaves Lucas county at present without a mine doing a shipping business.

It is not probable, however, that these conditions will last long. Extensive prospecting for coal has been done in the county for a number of years and is still going on, large tracts of coal land have been acquired by mining corporations and their development will not be much longer delayed.

Besides a few small local mines, working the upper coal measure, there is now only one mine in the county working the lower coal seam. This is the Inland Mine, northeast of Chariton. It is one of the best coal properties in Iowa, and the best developed mine, not having railroad connection, ever opened in the state. It is a conservative statement that this mine can produce readily 1,000 tons of coal daily within a few months after shipping facilities are provided and the permanent equipments are placed.

The temporary break in the coal industry of Lucas county will be of short duration, and it can be confidently expected that within a few years this county will stand very near the head of the list of the coal producing counties of Iowa and that it will stay there for many years to come.

MINES IN LUCAS COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Whitebreast Fuel Company	4	Cleveland	C., B. & Q.	Shaft	Room and pillar	Steam	Fan
Inland Fuel Company		3½ miles northeast of Chariton		Shaft	Room and pillar	Steam	Fan
Skidmore Bros.		Northeast of Lucas		Shaft	Long wall	Horse	Furnace

WAYNE COUNTY.

Nearly all the coal produced at present in Wayne county comes from the two mines at Seymour, operated by the Numa Block Coal Company. The Big Jim Mine, located on the Chicago, Milwaukee and St. Paul Railroad, has produced more coal per annum in recent years than any other mine in the Appanoose-Wayne coal field. Working full time the mine can produce easily 100,000 tons of coal per year. The mine is equipped with first motion engines, steam dirt dump and box car loader. It is in satisfactory condition. The Sunshine mine is located on the Chicago, Rock Island & Pacific Railroad. For some time the ventilation of the mine has been unsatisfactory, and to remove the difficulty, and at the same time to provide a more available escape, the management was requested to sink an additional air and escape shaft. This work has been undertaken. A fan will be erected at the new shaft.

The local mines are located in the vicinity of Seymour and south of Confidence. They are in fairly satisfactory condition.

MINES IN WAYNE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Numa Block Coal Company	2	1 mile east of Seymour	C.M.& St. P.	Shaft	Long wall	Steam	Fan
Numa Block Coal Company	3	Seymour	C., R. I. & P.	Shaft	Long wall	Steam	Fan
L. Blue		North of Sewal		Shaft	Long wall	Horse	Furnace
Carey Bros.		4 miles southwest of Seymour		Shaft	Long wall	Steam	Furnace
L. K. Edwards		4 miles south of Confidence		Shaft	Long wall	Steam	Furnace
Jos. Hayhurst		3½ miles south of Confidence		Shaft	Long wall	Horse	Furnace
John Hayhurst		South of Confidence		Shaft	Long wall	Horse	Furnace
L. Frye		South of Confidence		Shaft	Long wall	Steam	Fan

TAYLOR COUNTY.

Coal mining in Taylor county is now almost entirely confined to New Market and vicinity. Six mines are at present operated there, three of them having switches off the Burlington railroad. The coal is reached by shafts, the coal seam is about sixteen inches thick and is worked long-wall.

No accident of a serious nature occurred in any of these mines in the last two years.

During the year ending June 30, 1907, the mines of Taylor county produced 15,951 tons, and during the year ending June 30, 1908, the output amounted to 13,861 tons.

MINES IN TAYLOR COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Union Coal Company		East of New Market	C., B. & Q.	Shaft	Long wall	Horse	Furnace
Campbell Coal Company	1	East of New Market	C., B. & Q.	Shaft	Long wall	Horse	Furnace
Campbell Coal Company	2	East of New Market		Shaft	Long wall	Horse	Furnace
Wm. Browning		East of New Market	C., B. & Q.	Shaft	Long wall	Horse	Furnace
N. Easter		2 miles east of New Market		Shaft	Long wall	Horse	Furnace
W. F. Luellen		2 miles east of New Market		Shaft	Long wall	Horse	Furnace

PAGE COUNTY.

During the year ending June 30, 1907, the three mines located west of Clarinda and the one located near Coin produced 15,981 tons of coal, during the year ending June 30, 1908, these mines produced 14,045 tons.

The coal seam worked in Page county is thin, averaging less than eighteen inches in thickness. Some of the shafts are of considerable depth, the deepest is located near Coin and reaches the coal at 230 feet. All the mines are fairly equipped, two using steam power for hoisting. The mines are reasonably safe and generally in satisfactory sanitary condition.

It appears that the reasonably safe conditions existing at the working face has made some miners extremely careless about protecting themselves properly against injury or death. A striking case of such carelessness occurred in the Pearson and Maley mine west of Clarinda on February 21, 1908, and resulted in the death of two miners, one of them having worked in the mines of the county for many years. A personal inspection of the place in the mine where the accident occurred, showed that these two men were killed through absolute and gross carelessness on their part.

On the 10th of March, 1908, the Coin Coal Company was notified that a second opening must be made and other safeguards provided to protect the men working in the mine. On April 1st I was advised that the sinking of the second shaft was under way.

MINES IN PAGE COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means of ventilation
Johnston & Company		2 miles west of Clarinda		Shaft	Long wall	Steam	Furnace
Pearson & Maley		West of Clarinda		Shaft	Long wall	Horse	Furnace
J. Marshall	1	2 miles southwest of Clarinda		Shaft	Long wall	Horse	Furnace
Coin Coal Company		Coin		Shaft	Long wall	Steam	Jet

ADAMS COUNTY.

During the year ending June 30, 1907, Adams county produced 20,490 tons of coal, while during the year ending June 30, 1908, 17,760 tons were produced. A little coal has been shipped from the mines near Nodaway, but as none of the mines in the county have railroad connection, almost the entire output is sold in the home market.

The coal seam averages about sixteen inches in thickness, is reached by shallow shafts and is worked longwall. The mines are of small extent and mining is done under reasonably safe conditions. The sanitary condition of the mines is generally satisfactory.

The principal mining centers are at Nodaway and Carbon. At the latter a number of new openings are under way to take the place of some that have recently been abandoned.

MINES IN ADAMS COUNTY, THEIR LOCATION, ETC.

Corporation, Firm or Operator	Mine number	Location of Mine	Railroad Connection, if Any	Kind of opening	System of Working	Power used	Means o ventilation
M. Jones		Carbon		Shaft	Long wall	Horse	Furnace
J. F. Ruth		Carbon		Shaft	Long wall	Horse	Furnace
J. F. Wild	2	Carbon		Shaft	Long wall	Horse	Furnace
Herm Day		West of Carbon		Shaft	Long wall	Horse	Furnace
R. N. Hathaway		West of Carbon		Shaft	Long wall	Horse	Furnace
Smith & Tindall		Carbon		Shaft	Long wall	Horse	Furnace
Smith & Dixon		Northwest of Carbon		Shaft	Long wall	Horse	Furnace
H. K. Demirjean		Briscoe		Shaft	Long wall	Horse	Furnace
Daugherty & Son		Northwest of Nodaway		Shaft	Long wall	Horse	Furnace
F. Weil		Northwest of Nodaway		Shaft	Long wall	Horse	Furnace

LIST OF CORPORATIONS, FIRMS AND INDIVIDUALS OPERATING MINES IN THE FIRST DISTRICT, THEIR POSTOFFICE ADDRESS, NUMBER OF MINES OPERATED BY THEM IN THE DISTRICT, AND SHIPPING FACILITIES, IF ANY.

Corporation, Firm or Individual	Address	Number of mines	Shipping Facilities
Scandinavian Coal Company	Centerville	2	Keokuk & Western
Walnut Block Coal Company	Brazil	1	Keokuk & Western
Phoenix Coal Company	Brazil	1	Keokuk & Western
Centerville Block Coal Company	Centerville	7	Keokuk & Western, C., R. I. & P., and Iowa Central
Peacock Coal Company	Brazil	1	Keokuk & Western
Oriental Coal Company	Centerville	3	Keokuk & Western
Perfection Block Coal Company	Ottumwa	1	Keokuk & Western
Sunshine Coal Company	Centerville	1	Keokuk & Western
Anchor Coal Company	Centerville	3	Keokuk & Western, and C., R. I. & P. Ry.
Dewey Coal Company	Centerville	1	Keokuk & Western
Consolidated Block Coal Co.	Cincinnati	1	Chicago, Burlington and Kansas City
Mendota Coal & Mining Company	Cincinnati	2	Chicago, Burlington and Kansas City
Armstrong Coal Company	Cincinnati	1	Chicago, Burlington and Kansas City
Thistle Coal Company	Cincinnati	3	Chicago, Burlington and Kansas City
Exline Coal Company	Exline	2	Chicago, Burlington and Kansas City
Iowa Block Coal Company	Exline	1	Chicago, Burlington and Kansas City
C. B. and K. C. Coal Company	Exline	1	Chicago, Burlington and Kansas City
Numa Block Coal Company	Seymour	3	C., R. I. & P., and C., M. & St. Paul Ry.
Prairie Block Coal Company	Centerville	1	C., R. I. & P. Ry.
Center Coal Company	Centerville	1	C., R. I. & P. Ry.
Manufacturers Coal & Coke Co.	Connelsville, Mo.	1	C., B. & Q. Railroad
Carbon Block Coal Company	Centerville	1	C., R. I. & P. Ry.
Consumers Coal Company	Cedar Rapids	1	C., M. & St. Paul Ry.
Big Jo Coal Company	Harkes	1	C., M. & St. Paul Ry.
Peerless Coal Company	Mystic	6	C., M. & St. Paul Ry.
Egypt Coal Company	Mystic	1	C., M. & St. Paul Ry.
Acken Coal Company	Mystic	2	C., M. & St. Paul Ry.
Mystic Coal Company	Mystic	3	C., M. & St. Paul Ry.
Mystic Block Coal Company	Mystic	5	C., M. & St. P. and K. & W
Winnifred Coal Company	Mystic	1	C., M. & St. Paul Ry.
Beggs Coal Company	Mystic	1	C., M. & St. Paul Ry.
Elgin & Barrett Coal Company	Mystic	1	C., M. & St. Paul Ry.
Inter-Ocean Coal Company	Mystic	1	C., M. & St. Paul Ry.
Fowler & Wilson Coal Company	Rathbun	1	C., M. & St. Paul Ry.
Unity Block Coal Company	Darbyville	1	C., M. & St. Paul Ry.
Domestic Coal Company	Cincinnati	1	C. B. & Kansas City Ry.
White Oak Coal Company	Exline	1	C. B. & Kansas City Ry.
Walnut Grove Coal Company	Numa	1	C., R. I. & P. Ry.
Ira A. Guinn	Dean	1	
Citizens Coal Company	Centerville	1	
Happy Coal Company	Centerville	1	
White Oak Coal Company	Centerville	1	

Corporation, Firm or Individual	Address	Number of mines	Shipping Facilities
Monitor Coal Company	Centerville	1	
Star Coal Company	Centerville	1	
Trio Coal Company	Centerville	1	
Rock Valley Coal Company	Centerville	1	
John Schrum	Centerville	1	
John Koontz	Centerville	1	
Ed McConville	Mystic	1	
Rosebrook Coal Company	Oskaloosa	1	Iowa Central Railway
Wapello Coal Company	Hiteman	2	C., B. & Q. Railroad
Smoky Hollow Coal Company	Avery	2	C., B. & Q. Railroad
Star Coal Company	Albia	1	C., B. & Q. Railroad
White Ash Coal Company	Avery	1	C., B. & Q. Railroad
Phillips Fuel Company	Ottumwa	1	C., M. & St. Paul Ry.
Albia Coal Company	Albia	1	Iowa Central Railway
Hocking Coal Company	Hocking	2	Iowa Central Railway
Inland Fuel Company	Chariton	1	
L. Blue	Sewal	1	
Carey Bros.	Seymour	1	
John Winger	Seymour	1	
L. Frye	Promise City	1	
John Hayhurst	Promise City	1	
Union Coal Company	New Market	1	C., B. & Q. Railroad
Campbell Coal Company	New Market	2	C., B. & Q. Railroad
Wm. Browning	New Market	1	C., B. & Q. Railroad
N. Easter	New Market	1	C., B. & Q. Railroad
Johnston & Company	Clarinda	1	
John Marshall	Clarinda	1	
Pearson & Maley	Clarinda	1	
Coin Coal Company	Coin	1	
M. Jones	Carbon	1	
J. F. Ruth	Carbon	1	
J. F. Wild	Carbon	1	
C. Dixon	Carbon	1	
H. Day	Nodaway	1	
Mason & Daugherty	Nodaway	1	
R. N. Hathaway	Nodaway	1	
F. Weil	Nodaway	1	
H. K. Demirjean	Briscoe	1	

SECOND DISTRICT

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa:

SIR,—I submit herewith my first report as Inspector of Mines, covering a period of eighteen months' service, and furnish such data as was available, to include, from the six months' service of my predecessor, for the biennial period ending June 30th, 1908.

R. T. RHYS,

Inspector Second District.

In Memoriam

James A. Campbell, State Inspector of Mines of the second inspection district of Iowa, after an illness of ten months, caused by complication of diseases, died at his home, Ottumwa, Iowa, February 1, 1907.

Mr. Campbell was born in Warren county, Illinois, July 4, 1865. His parents, Mr. and Mrs. Ira G. Campbell, moved to Albia, Iowa, in 1868. He commenced to work in the mines when very young and was intimately connected with mining in one form or another nearly all his life. In the year 1885, he moved to Ottumwa, and resided there until his death.

May 19, 1894, he was appointed by Governor Jackson, as State Mine Inspector. April, 1896, he was reappointed to the same position by Governor Drake, and in 1898 and 1900 by Governor Shaw, and by Governor Cummins, May 3, 1904, and held the position until September 30, 1906, when failing health compelled him to resign. During his ten and one-half years of service as Inspector he made a very large circle of friends and acquaintances throughout the state. He was known to all to be a plain, practical man. Generous and sympathetic and fair in his official dealings between miners and operators. He is survived by his wife and three sons, his mother, two sisters and one brother.

REPORT OF THE SECOND DISTRICT.

The second inspection district includes the following counties: Monroe (part), Mahaska, Wapello, Marion, Keokuk, Van Buren, Davis, Warren, Adair and Jefferson.

There are 114 mines in operation in the district and their production for the biennial period ending June 30, 1908, was 4,741,151 tons of coal, and to produce this amount there were employed 3,047 miners, 1,053 inside employes and 445 outside employes, making a total of 4,545 men employed in and around the mines of the district.

I assumed the duties of inspector of the second district October 1, 1906, succeeding the late Mr. James A. Campbell.

Having filled an unexpired term of a few months as inspector of this district in the year 1904, the work and the mines were not wholly strange to me. This slight acquaintance with the territory and the willing assistance I received from the operators and miners and their officials made my duties easier and more agreeable to perform than it would have been otherwise, and I hereby most sincerely thank them all for their co-operation and the good will they have extended me.

The co-operation of the miners and operators has always been a source of help and pleasure to the inspector, but more so today in this state than ever before, for we find that in their joint agreement, known as the "Des Moines agreement," there are incorporated many things that tend to the safety, health and comfort of the miner that are not found in our mining laws. (1) Their agreement calls for the miner to keep his working place and the operator the entries as free from dust as practicable, and the entries shall be sprinkled as often as necessary to keep them in damp condition. (2) It prescribes what tamping material to be used, with rules and limitations. (3) It says that in all mines when men are going to and from their work at the regular starting and quitting time the company shall employ men at the top and bottom of the shaft, whose duty it shall be to attend the signal bells. (4) It recognizes the right and allows the miners the privilege of employing shotfirers. (5) It specifies the number of

hours that constitutes a day's work. (6) It says that the operator shall keep sufficient blankets, oils, bandages, etc., and suitable conveyance or stretchers readily available at each mine to properly care for and convey injured persons to their homes in case of accident. These and other agreements that could be named are not required by our mining laws at all and their enforcement rests with the miners and operators themselves. It is not my desire to say anything derogatory to our mining laws, but from what I have quoted above it is evident that they have not kept pace with the needs and the rapid progress of mining. They need to be strengthened and added to in many things and made clearer and more definite on many points.

ACCIDENTS.

Probably not in the history of coal mining in this country has coal mine accidents, their causes and prevention received as much attention than in the last few months. This undoubtedly is due to the constant increase in the number of accidents in our mines compared with the steady decrease of accidents in the mines of foreign countries and also to the series of great disasters that have of late taken place in several of our states that has awakened the sympathies of our people and created an earnest desire that they may, if possible, be prevented.

During the biennial period ending June 30, 1908, there occurred in and around the mines of the second inspection district 21 fatal and 61 non-fatal accidents. These accidents were due to the following causes:

Accidents Due to	Fatal	Non-Fatal
Fall of slate	11	25
Windy shot or shots	2	-------
After damps of dust explosions	1	-------
Premature explosion of shots	1	8
Run over by coal flat	1	-------
Fall of coal and rock	1	4
Caught between cage and side of shaft	1	2
Fell down shaft	2	-------
Run over by pit cars	1	14
Other causes	-------	13
Total	21	61

To report that all the above were unavoidable accidents incident to the mining of coal would be erroneous, for it is evident from the testimonies given that about 40 per cent of them could have

been prevented. Unhappily in the majority of cases they were due to the carelessness of the men themselves. I am not saying this with the thought that I am stating something new, but with the hope that I may emphasize what has been said many times before by the inspectors of this district and elsewhere—that if we are to have fewer casualties in our mines every mine worker must be made to realize that he himself has much to do to bring this to pass, by making it invariably his first work and to consider it always his most important duty to examine thoroughly the roof above him and to make and keep as far as he can his working place in a safe condition, regardless of the length of time this may take him to do so, the number of cars of coal he may miss, or the inconvenience the necessary timbers may give him to mine or load his coal. He needs to be constantly reminded that he must be to a large measure his own guard, as well as his "brother's keeper" and that no mining laws, rules or supervision, however perfect they may be, can wholly release him of the necessity of exercising the utmost care for his safety while working in the mine.

To report also that because 50 per cent of the accidents given above occurred by the falling of slate at the "face" or, in that part of the mine where the state law holds the miner, as one, responsible for the safety of the place under his control, does not mean to say that the operator had always done all that he could towards preventing the same, for it is evident from the information gathered concerning these accidents that had the operator through his mine foreman or his subordinate made a more frequent and systematic supervision of the working face, and exercised their authority regarding the safety of the same, unquestionably some of the accidents reported would not have occurred.

To the credit of the operator, be it said, that in many of the mines of the district men are assigned to see to it daily that all traveling and haulage roads are in a safe condition and the result is that accidents from fall of slate on them is a rare occurrence. It is to be regretted that this commendable practice of frequent and systematic inspection of the roof is confined practically to the traveling and haulage roads alone and that the working face receives only an occasional and irregular visit from the mine foreman or his subordinate. Knowing, as every operator does, that he has often in his employe men that do not exercise the same degree of prudence and good judgment for their personal safety as others, that some are habitually careless and sometimes reckless, and I may add, that at the present time there are employed in nearly

every mine through the district men who are limited in their experience as miners and even in their knowledge to speak and to understand the English language or the language of the boss, and knowing also that the working face is and always has been one of the most prolific sources of casualities, it certainly demands of the operator, and it should be given, the same frequent and systematic inspection of the roof as he is giving through his subordinates to the traveling and haulage roads. For the mine foreman to mark, or, show the miner his room and then leave him to take care of it, paying him only an occasional visit, and that perhaps only when invited by the miner to do so to settle a question of difficult work, is not conducive to safety nor good discipline. It is true, as stated above, that the miner, according to our state law, is "to securely prop or support the roof and entries under his control," but it is equally true that the mine official has not performed his whole duty by simply furnishing the miner with the necessary timber. He is to see that the work is promptly done. (* * * Or if any miner, workman or other person * * * shall neglect or refuse to obey any order given by the superintendent in relation to the safety of the mine in that part under his charge and control, he shall be punished by fine not exceeding one hundred dollars, or imprisonment in the county jail not exceeding thirty days." Sec. 2491).

At no time was a vigorous supervision of the face more necessary than it is today and at no time were conditions in this district more favorable for it to bring good results than at the present time; for in all the mines of the district that have been in operation one year they fire shots but once a day (at quitting time) which makes it possible and practical to carry on such inspections, and not until this part of the mine receives a more mutual and regular supervision and the miner made to comply with the mandates of these inspections so as to instill in him constantly a sense of personal care, can we expect casualties at the face to decrease.

VENTILATION.

Out of the total number of calls to this office 75 per cent are complaints regarding ventilation. Probably not a mine in the district, but what is amply equipped with fan or furnace to supply all the air necessary for the number of men employed and also but has *more than* the required amount entering the mine but unfortunately

not in all of them is it properly distributed and carried around the face.

Gladly acknowledging that there are mines in the district that are well ventilated and concerning these I have no criticism to make, only wishing there were more of them. But there are other mines where the ventilation is only fair and few where it is bad. These two classes of mines—the fair and the bad—are a source of continual trouble to the inspector and often a sore infliction upon the miner.

Every mine inspector that has held office in this state has urged from time to time for larger and less obstructive air courses, more substantially built stoppings and doors or overcasts and for an increased circulation of air at the face. Their efforts, with the aid of the miners, have met with a degree of success, for no one will dispute but what the ventilation of the mines on the whole is better today than it was twenty-five years ago; but there yet remains much to be done to bring about a higher standard and more efficient ventilation in a large number of our mines. No further proof of the above statement is needed than a visit to some of the mines of the district where can be seen neglected main air courses that are sometimes, in some places, dangerous and hard to travel on account of falls, with no provision left to remove the same, and when a fall occurs the best that can be done to it is to scatter and level it; or when timbering is needed the timbers have to be dragged a long distance over high falls, one stick at a time. Poor stoppings also can be found in abundance, causing the amount of air reaching the actual working face to not exceed one-third and sometimes not one-fourth of that produced by the ventilator, and often it is found to be below the quantity required by law and much less than the quantity which present day conditions require. No fair-minded mine foreman will deny but it would be economy as well as efficiency to keep the main air courses at least in good condition as the mine develops and to do away with the ordinary dirt stoppings in all those mines where the nature of the top and bottom are not conducive to bring creep or weight to pack them air tight, and build instead cemented board or sand stoppings.

In addition to small congested air courses, leaky constructed stoppings and doors, I am led to believe that there is another cause that is more or less responsible for poor ventilation in this district and that is the lack of definite knowledge among mine foremen and superintendents of the quantity of air and its velocity circulating through the mine. It is true that an anemometer is not ab-

solutely necessary to ventilate a mine, but it is undoubtedly a very convenient help to its possessor to ascertain accurately the amount of air circulating and an aid for him to properly distribute the same. To my personal knowledge not more than one-half dozen mines have for the use of their mine foremen and superintendents an anemometer and I am very sure not all of these instruments are in working condition; nor do I know of any mine official that has no anemometer, trouble himself about measuring the current in any other way than simply to notice its effect on the flame of his lamp and make a guess at the number of cubic feet traveling. So the number of mine foremen and superintendents in the district to my knowledge who can tell with a degree of certainty the amount of air produced by the ventilator and circulated through the different parts of the mine are less than one-half dozen. Such lack of definite knowledge cannot help but retard progress and improvement along this line. No mine at this late day should be ventilated by guess, but should be ventilated and supervised as far as possible by actual knowledge of existing conditions. Not only the mine foreman needs this definite knowledge, but he owes it to every underground worker; for he should no more make it always his practice to guess—no matter how good a guesser he may be—the lawful amount of air required for the number of men employed than he should attempt to guess the weight of the coal they load. Therefore he should take a true measurement, by an anemometer, once or twice each month and record the same in a book for that purpose, of the amount of air entering the mine, into each split, and that passes along the working face. These records should be accessible within office hours to every underground worker that wishes to see them and to the mine inspector of the district.

SHOT EXAMINERS.

The law regarding shot examiners is universally observed and now in all the mines of the district the operators and miners have agreed to let the shot examiners do also the firing. Any good law can be abused and the law of shot examiners is no exception. The sham inspection and sometimes no inspection at all of the holes by several examiners made it necessary for me to revoke their permission.

Two shot examiners were killed in the district during the biennial period ending June 30, 1908, while acting as shot firers.

Had they taken more time to examine and inquire more fully of the miner regarding the amount of powder and the length of fuse to be used in the holes they were to fire, my opinion is that one, if not both, of the accidents would not have occurred. Although our state law does not restrict the amount of explosive to be used in a single hole, nevertheless it is one of the most important duties of the shot examiner to inquire of the miner the amount of explosive he intends to use, and the examiner should satisfy himself that the same is not excessive or dangerous for him to fire. It is a well known fact that the tendency of late years has been to do less "preparing of the shots;" to let explosive do work that formerly was done with the pick, therefore necessitating much heavier charges of explosives to be fired in a single hole than it did formerly when considerable cutting, mining and shaping of the coal was done with the pick. It is the duty of the shot examiner, more than any one else, to see that the practice referred to is not carried beyond the point of safety. For not only is the excessive use of explosives a waste of coal and a menace to the safety of the mine and the lives of the shot firers, but it is undoubtedly the primary cause for a large number of our mine accidents under the title of "falling of slate."

Too much hurry to get through with the work and too much reliance upon friends, which meant no inspection at all, but simply an inquiry from the mouth of the room as to the number of shots they had to be fired, have been some of the evil practices some examiners had fallen into. I am glad to report, however, that complaints of the above nature are now rarely made. Fair effort is made today to do the work thoroughly and to give it ample time.

FATAL ACCIDENTS OCCURRING IN THE SECOND DISTRICT FOR THE YEAR ENDING JUNE 30, 1908.

On July 19, 1906, fatal accident occurred to W. Capolupei, a miner in the employ of the Rex Fuel Company of Durfee, Mahaska county. He was at work in his room when a fall of slate occurred, killing him.

On July 21, 1906, fatal accident occurred to Herman Vogal, a miner in the employ of the Rex Fuel Company of Durfee, Mahaska county. Vogal was in the face of his room and seemed to be mining off a shot when a fall of slate occurred breaking his neck and limbs. He died before he was gotten out of the mine. Coroner's jury decided that his death was caused by an unavoidable fall of slate and that no blame attached to any one.

On November 1, 1906, fatal accident occurred to Kinzie Huston and Oscar Lowe miners in the employ of the Dempster Coal Company of Ottumwa, Wapello county. There were eight shots to be fired in the mine that afternoon. The first shot went off after the cage was started hoisting. When the third shot went off it slightly lifted the cage up and before it had adjusted itself the fourth shot went off forcing both cages, which were then near the center of the shaft, with terrific force against the head gear of the shaft. The others in the cage were thrown from the cage but Kinzie Huston fell back into the shaft and was killed. Oscar Lowe was caught between the cage and the headgear and was so badly injured that he died a few days afterwards.

On February 4, 1907, fatal accident occurred to Michael Kasper, a miner in the employ of the Lost Creek Fuel Company of Lost Creek, Mahaska county. He is supposed to have lost his balance and fell after the cage left the bottom. Was caught about ten feet of main landing and dragged along bunting for that distance to landing. He expired within five minutes after cage reached landing and before he was released.

On March 5, 1907, fatal accident occurred to Charles Williams, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county. Accident occurred at Mine 13. At the time of his death Williams was chunking coal. At that place it is customary when one car is loaded to ride it down the track about fifty yards and stop it. At the time of the accident there was one car standing on the track about fifty yards from the shaft and when the second car was loaded Mr. Williams rode the front end of the car down. The brake was on the end of the car. He tried to stop the car, but could not and it kept going faster and faster and when it struck the other car Williams fell down in between the cars and was run over. Coroner's jury decided his death was purely accidental.

On March 6, 1907, fatal accident occurred to S. B. Nail, an employe of the Atwood Coal Company of Blythe, Mahaska county. Mr. Nail was at the face of his room. His partner was wedging false roof. Mr. Nail heard the cracking or working and got uneasy and in an effort to get out got right under a piece of slate which fell and crushed him.

On April 11, 1907, fatal accident occurred to J. W. Mason, a shot examiner and shot firer in Mine No. 11 of the Consolidation Coal Company of Buxton, Monroe county. Mr. Mason had been employed as shot examiner and shot firer for some time. On this day he was found dead on East Side, 14 AX entry, Room No. 5. The supposition is that a dust explosion occurred on the AX entry No. 1. The shots had not been fired in the room where Mason was found. The explosion was probably caused by a blown out shot.

On April 24, 1907, fatal accident occurred to Marcus O'Haloran, a miner in the employ of the Bolton & Hoover Coal Company of Bolton, Mahaska county. He was at work in Room No. 1, on the 11th West, when a fall of slate occurred, killing him instantly. He was fifty years of age and had been in the employ of the company about six months.

On April 25, 1907, fatal accident occurred to Spencer Winston, a shot examiner and shot firer at Mine No. 10 of the Consolidation Coal Company of Buxton, Monroe county. He was killed while performing his

duty as shot firer, supposedly on account of short fuse, in firing which did not give him time to get out of the shot's way.

On May 7, 1907, fatal accident occurred to John Tethrington, a miner in the employ of the Mammoth Vein Coal Company of Everist, Marion county. He was at work in Room 19 on Eighth East, North Entry, Mine No. 5, when a fall of coal and rock occurred. He was mining off a shot. Both legs were broken, cut on the back of head, rib on left side broken and cut on cheek. Accident occurred on May 7 and Tethrington died on May 9. He was forty-three years old and had been in the employ of the above company for about five weeks.

On July 14, 1906, fatal accident occurred to Charles Roadniper, a laborer in the employ of the Cunningham Coal Company of Oskaloosa, Mahaska county. Deceased was aiding in repairing a curb in the escape shaft when he was overcome with heat exhaustion and while in that condition fell backward, head first, into the shaft and was drowned in the water at the bottom of the escape shaft.

FATAL ACCIDENTS OCCURRING IN THE SECOND DISTRICT FOR THE YEAR ENDING JUNE 30, 1908.

On July 25, 1907, fatal accident occurred to Bates Bartolma, a timberman in the employ of the Bolton & Hoover Coal Company of Mahaska county. Fall of slate while cutting hole for timber. Slate fell on deceased. Deceased was cautioned about the condition of this piece of slate and could have timbered it easily, as plenty of timbers were close by. He got hurt about twenty minutes past 9 p. m., and died that night about one o'clock.

JOHN BIROS.

On July 26, 1907, fatal accident occurred to John Biros, a miner in the employ of the Crescent Coal Company of White City, Mahaska county. He was at work at face of Room 37, sixth south entry, and there was a bad piece of slate and timberman told him to take it down. Fall of slate which killed him occurred while he was attempting to drive a prop out to let slate down.

JOHN BROWN.

On September 19, 1907, fatal accident occurred to John Brown, a company man in the employ of the Consolidation Coal Company of Buxton, Monroe county. He was at work on the 11th C. entry parting in Mine No. 11 when fall of slate occurred. He died shortly after the accident.

JOE GLENN.

On October 3, 1907, fatal accident occurred to Joe Glenn, a miner in the employ of the Mammoth Vein Coal Company of Everist, Marion county. Accident happened in Room 13, Eighth South Entry, Mine No. 11.

Deceased went into room adjoining one in which he worked to borrow a scraper. Slate fell and crushed him. Evidence shows man working room where accident occurred had same well-timbered and considered it safe.

FRANK LOUCHE.

On October 10, 1907, fatal accident occurred to Frank Louche, a miner in the employ of the Rex Fuel Company of Durfee, Mahaska county. Accident occurred about 9:30 on above date, in Room 5, First North Entry. Cause of accident fall of slate. His head was crushed, causing instant death.

HARRISON FIELDS.

On December 17, 1907, fatal accident occurred to Harrison Fields, a dumper in the employ of the Rice Coal Company of Mahaska county. Coroner's jury decided that he came to his death while dumping and by approaching too close to shaft and with forceful momentum was carried into the open shaft, falling to his death, a distance of about thirty feet to shaft bottom.

ENOCH JOHNSON.

On January 30, 1908, fatal accident occurred to Enoch Johnson, a mule driver in the employ of the Roseland Coal Company of Ottumwa, Wapello county. It is supposed he did not sprag or brake his cars before starting down hill, upon which he was killed, and the cars got to going too fast, throwing him off and in front of the car which ran over him, crushing him and causing his death almost instantly.

WILLIAM EDWIN NEVIN.

On June 1, 1908, fatal accident occurred to William Edwin Nevin, a miner in the employ of the Roseland Coal Company of Ottumwa, Wapello county. He was at work drawing pillars and was ambitious to secure as much coal as possible, not realizing or thinking of danger, when a fall of slate occurred badly crushing him and causing his death.

CHARLES HORTON.

On June 19, 1908, fatal accident occurred to Charles Horton, a miner in Mine No. 5, Mammoth Vein Coal Company of Everist, Marion county. He was at work in CX Entry when a fall of slate, coal and black jack occurred, causing his death. Fall caused his death almost instantly.

FATAL ACCIDENTS

Fatal Accidents in District No. 2, for two years ending June 30, 1908

Date		Name of Deceased	Occupation	Cause of Death	Employed by	County
1906.						
July	19	W. Capolupei	Miner	Fall of slate	Rex Fuel Co.	Mahaska
July	21	Herman Vogal	Miner	Fall of slate	Rex Fuel Co.	Mahaska
November	1	Kinzie Huston	Miner	Thrown down shaft	Dempster Coal Co.	Wapello
November	1	Oscar Lowe	Miner	Crushed by cage	Dempster Coal Co.	Wapello
1907						
February	4	Michael Kasper	Miner	Crushed by cage	Lost Creek Fuel Co.	Mahaska
March	5	Chas. Williams	Miner	Run over by car	Consolidation Coal Co.	Monroe
March	6	S. B. Nall	Miner	Fall of slate	Atwood Coal Co.	Mahaska
April	11	J. W. Mason	Shot examiner	Dust explosion	Consolidation Coal Co.	Monroe
April	24	Marcus O'Haloran	Miner	Fall of slate	Bolton & Hoover Coal Co.	Mahaska
April	25	Spencer Winston	Shot examiner	Flying coal	Consolidation Coal Co.	Monroe
May	7	John Tethrington	Miner	Fall of coal	Mammoth Vein Coal Co.	Marion
1906.						
July	14	Chas. Roadniper	Laborer	Fell down shaft	Cunningham Coal Co.	Mahaska
1907.						
July	25	Bates Bartoloma	Timberman	Fall of slate	Bolton & Hoover Coal Co.	Mahaska
July	26	John Biros	Miner	Fall of slate	Crescent Coal Co.	Mahaska
September	19	John Brown	Timberman	Fall of slate	Consolidation Coal Co.	Monroe
October	3	Joe Glenn	Miner	Fall of slate	Mammoth Vein Coal Co.	Marion
October	10	Frank Louche	Miner	Fall of slate	Rex Fuel Co.	Mahaska
December	7	Harrison Fields	Dumper	Fell down shaft	Rice Coal Co.	Mahaska
1908.						
January	30	Enoch Johnson	Driver	Run over by car	Roseland Coal Co.	Wapello
June	1	Wm. Edwin Nevin	Miner	Fall of slate	Roseland Coal Co.	Wapello
June	19	Chas. Horton	Miner	Fall of slate	Mammoth Vein Coal Co.	Marion

NON-FATAL ACCIDENTS OCCURRING IN THE SECOND DISTRICT FOR THE YEAR ENDING JUNE 30, 1907.

July 31, 1906, Henry Corey, a miner in the employ of Phillips Fuel Company of Rutledge, Wapello county. Jawbone broken. False top falling.

August 1, 1906, Tom Minor, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of coal. Leg broken.

August 29, 1906, Alonzo Brooks, a timberman in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of slate breaking arm.

September 12, 1906, B. H. Johnson, a driver in the employ of the Consolidation Coal Company of Buxton, Monroe county. Was run over by car. One leg broken.

September 20, 1906, Isaac Johnson, a driver for the Consolidation Coal Company of Buxton, Monroe county. Mine No. 13. Car run over his leg, breaking it.

October 25, 1906, John Findlay of Findlay Coal Company of Douds, Van Buren county. Blown out shot. Face and hands burned.

October 25, 1906, John Albertson, a miner in the employ of Findlay Coal Company of Douds, Van Buren county. Blown out shot. Face and arms badly burned.

October 26, 1906, W. M. Cox, a driver in the employ of the Crickett Coal Company of Mahaska county. Fell off trip. Fractured clavicle.

October 28, 1906, Robert Calvert, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of coal fracturing his skull.

November 8, 1906, Enlyn Jones, a cager in the employ of the English Creek Coal Company of Marion county. Went to put tail rope on bell sheave. Was thrown against rib, breaking one arm.

November 27, 1906, Frank Ademeet, a miner in the employ of the National Union Coal Company of Beacon, Mahaska county. Fall of slate breaking one leg.

November 28, 1906, B. S. Mason, a shot firer for Rex Fuel Company of Mahaska county. Shot blew through a room, breaking one arm.

December 28, 1906, Tom Stiner, a miner in the employ of Anchor Coal Company of Laddsdale, Iowa. Explosion of dynamite. His hands were mangled, face burned, and wounds on legs and body caused by flying pieces of tin and coal.

December 28, 1906, Frank Steiner, a miner in the employ of the Anchor Coal Company of Laddsdale. Explosion of dynamite. Flesh wounds caused by flying tin and coal.

December 28, 1906, Sylvester Pyle, a miner in the employ of the Anchor Coal Company of Laddsdale. Dynamite explosion. Injured by flying tin.

January 14, 1907, Samuel Hawk, a miner in Mine No. 7, Phillips Fuel Company of Rutledge, Wapello county. Fall of slate injuring him about head and neck.

January 30, 1907, Archard Angwin, a timberman in the employ of the Roseland Coal Company of Wapello county. Leg broken in two places. Fall of slate.

February 2, 1907, Robert Doolittle, a night pumper in the employ of the Crescent Coal Company of White City, Mahaska county. His overcoat caught in engine. He was cut and bruised and one toe dislocated.

February 4, 1907, William Percy, a miner in the employ of J. T. Hayes of Marion county. Fall of slate breaking one arm.

February 4, 1907, Cyrus Kerr, a machine man in the employ of the Eveland Coal Company of Eveland, Mahaska county. Caught by cage. Hurt about head and shoulders.

February 6, 1907, Andrew Johnson, a tracklayer in the employ of the Ottumwa Brick & Construction Company of Ottumwa, Wapello county. Fall of rock. Hip dislocated.

February 9, 1907, Bert Harstrom, a driver for the Crescent Coal Company of White City, Mahaska county. Slipped off tail chain. Car ran over his foot, breaking four toes.

February 25, 1907, Charles Page, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of coal. Leg broken below knee in two places.

March 1, 1907, R. Wake, a tracklayer for the Rex Fuel Company of Mahaska county. Bruised and hurt internally by cage.

March 1, 1907, J. H. Olson, a timberman in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of slate. His jaw broken and face smashed.

March 14, 1907, Allen Coulter, a miner in the employ of Coulter & Sons of Mahaska county. Fall of slate injuring him.

March 18, 1907, Mike Klobnak, a driver in the employ of the Crescent Coal Company of White City, Mahaska county. Car jumped track and his foot was caught by the head bumpers. Two bones in his foot were broken.

March 20, 1907, Lawrence Sharp, a trapper in Mine No. 10 of the Consolidation Coal Company of Buxton, Monroe county. Run over by car. One arm and one leg broken.

March 29, 1907, Ed. Williams, a shot examiner and shot firer in Mine No. 11 of the Consolidation Coal Company of Buxton, Monroe county. Premature shot; said to be short fuse in hole. Compound fracture of right arm.

April 11, 1907, William Conners, a driver in the employ of the Ottumwa Brick & Construction Company of Ottumwa, Wapello county. Run over by car. Hip dislocated.

April 18, 1907, Jake Cadle, a miner in the employ of the Consolidation Coal Company of Buxton, Monroe county. Fall of slate, breaking bones in ankle.

April 19, 1907, Jake McKerson, a driver in the employ of the Consolidation Coal Company of Buxton, Monroe county. Mine 13. Mule kicked at him, and in trying to get out of the way he fell into the car, breaking his arm.

May 29, 1907, Emmet Jones, a driver in the employ of the Phillips Fuel Company of Wapello county. Run over by car. Leg cut and bruised.

June 3, 1907, William Sinks, a miner in the employ of the Crescent Coal Company of White City, Mahaska county. Fall of slate. Leg broken in two places.

June 6, 1907, E. D. Long, a shot examiner in the employ of the Ottumwa Brick & Construction Company of Ottumwa, Wapello county. Fall of slate. One leg broken.

June 29, 1907, Ralph Rauch, a miner in the employ of the Bolton & Hoover Coal Company of Bolton, Mahaska county. Fall of slate, breaking one leg above the ankle.

NON-FATAL ACCIDENTS OCCURRING IN THE SECOND DISTRICT FOR THE YEAR ENDING JUNE 30, 1908.

July 9, 1907, Frank Solentik, miner in No. 5, Crescent Coal Company, Mahaska county. Fall of slate. Back bruised and face cut.

August 19, 1907, Wm. J. Smith, a motorman in employ of Consolidation Coal Company of Buxton. Run over by car. Foot mashed.

November 9, 1907, Harry Lile, a miner in the employ of Phillips Fuel Company of Wapello county. Run over by car. Leg broken.

January 2, 1908, William Lewis, a shot firer in the employ of the National Union Coal Company, Mine No. 2, Beacon, Mahaska county. Premature explosion. Severely injured about head and shoulders.

January 7, 1908, John White, a mine foreman in employ of the Phillips Fuel Company of Rutledge, Wapello county. Fall of slate. Breaking one leg and crushing ankle.

January 8, 1908, Andy Crambruzzie, a miner in the employ of Crickett Coal Company of Crickett, Mahaska county. Fall of slate injuring him about hips and back.

December 12, 1907, O. L. Johnson, a miner in the employ of Crescent Coal Company of White City, Mahaska county. Caught by car. One arm broken.

March 14, 1908, John Witham, a miner in the employ of the Standard Coal Company of Ottumwa, Wapello county. Fall of coal injuring one leg.

December 14, 1907, William Mitchell, a miner in the employ of J. F. Hays of Marion county. Fall of slate. Bruised about hips.

October 26, 1907, Robert Wilson, a miner in the employ of Crawford Coal company of Mahaska county. Fall of slate. Back strained.

June 6, 1908, Ollie Crutche, a miner in the employ of the Crawford Coal Company of Mahaska county. Premature explosion.

September 10, 1907, August Pomier, a driver for Rex Fuel Company of Mahaska County. Run over by car. Leg broken.

May 26, 1908, J. C. Ansberry, miner in employ of Rex Fuel Company of Mahaska county. Fall of slate. Back and hips hurt.

————, Joe West, a driver for Bolton & Hoover Coal Company of Mahaska county. Fall of slate. Ankle dislocated.

————Dan Graves, a driver for Bolton & Hoover Coal company of Mahaska county. Struck by tail-rope. Leg broken.

January 6, 1908, M. Phellen, a miner in the employ of the Western Fuel Company of Pekay, Mahaska county. Fall of rock. Ankle broken.

March 30, 1908, John Fedro, a driver in the employ of the Western Fuel Company of Pekay, Mahaska county. Caught by car. Body crushed.

December 8, 1907, Sam Crawford, a miner in the employ of William Miller of Marion county. Fall of slate badly bruising Crawford about body.

August 28, 1907, Frank Reed, shaft sinker in the employ of the Phillips Fuel Company of Wapello county. Severely cut on hand while cutting pipes.

August 23, 1907, Albert Erscine, cager in employ of Phillips Fuel Company of Wapello county. Coal fell from pit car on cage, cutting a gash on Erscine's head.

November 9, 1907, Harry Dial, driver in the employ of the Phillips Fuel Company of Wapello county. Run over by car. Leg broken.

January 7, 1908, Jack White, pit boss for Phillips Fuel Company of Wapello county. Fall of slate. Broken leg and crushed ankle.

February 20, 1908, William Foulkes, Jr., driver for Phillips Fuel Company of Wapello county. Foot caught in tail-rope. Bone in foot broken.

February 26, 1908, William Day, a miner in the employ of the Phillips Fuel Company of Wapello county. Fall of slate. Bruised back and leg.

March 3, 1908, John D. Lilly, a miner in the employ of the Phillips Fuel Company of Wapello county. Fall of slate. Bruised back and chest.

NON-FATAL ACCIDENTS.

Non-Fatal Accidents in District No. 2 For Two Years Ending June 30, 1908.

Date		Name	Occupation	Cause of Accident	Character of Injury	Mine Where Accident Occurred	County
1906.							
July	31	Henry Corey	Miner	False top falling	Jaw broken	Phillips Fuel Co.	Wapello
August	1	Tom Minor	Miner	Fall of coal	Leg broken	Consolidation Coal Co.	Monroe
August	28	Alonzo Brooks	Timberman	Fall of slate	Arm broken	Consolidation Coal Co.	Monroe
September	12	B. H. Johnson	Driver	Run over by car	Leg broken	Consolidation Coal Co.	Monroe
September	20	Isaac Johnson	Driver	Run over by car	Leg broken	Consolidation Coal Co.	Monroe
October	25	John Findlay	Miner	Blown out shot	Face and hands burned	Findlay Coal Co.	Van Buren
October	25	John Albertson	Miner	Blown out shot	Face and hands burned	Findlay Coal Co.	Van Buren
October	26	W. M. Cox	Driver	Fell off trip	Shoulder broken	Crickett Coal Co.	Mahaska
October	28	Robt. Calvert	Miner	Fall of coal	Fractured skull	Consolidation Coal Co.	Monroe
November	8	Enlyn Jones	Cager	Struck by tail rope	Arm broken	English Creek Coal Co.	Marion
November	27	Frank Ademeet	Miner	Fall of slate	Leg broken	National Union Coal Co.	Mahaska
November	28	B. S. Mason	Shot firer	Flying coal	Arm broken	Rex Fuel Co.	Mahaska
December	28	Tom Stiner	Miner	Explosion dynamite	Face burned and body bruised	Anchor Coal Co.	Wapello
December	28	Frank Stiner	Miner	Explosion dynamite	Flesh wounds	Anchor Coal Co.	Wapello
December	28	Sylvester Pyle	Miner	Explosion dynamite	Flesh wounds	Anchor Coal Co.	Wapello
1907.							
January	14	Samuel Hawk	Miner	Fall of slate	Head and neck cut	Phillips Fuel Co.	Wapello
January	30	Archard Angivin	Timberman	Fall of slate	Leg broken	Roseland Coal Co.	Wapello
February	2	Robt. Doolittle	Night man	Caught in engine	Body bruised	Crescent Coal Co.	Mahaska
February	4	Wm. Percy	Miner	Fall of slate	Arm broken	J. T. Hays Coal Co.	Marion
February	4	Cyrus Kerr	Machine man	Caught by cage	Head and shoulders hurt	Eveland Coal Co.	Mahaska
February	6	Andrew Johnson	Tracklayer	Fall of rock	Hip dislocated	Ottumwa Brick & Cons. Co.	Wapello
February	9	Bert Harstrom	Driver	Car ran over foot	Foot mashed	Crescent Coal Co.	Mahaska
1907.							
February	25	Charles Page	Miner	Fall of coal	Leg broken	Consolidation Coal Co.	Monroe
March	1	R. Wake	Tracklayer	Caught by cage	Hurt internally	Rex Fuel Co.	Mahaska
March	9	J. H. Olson	Timberman	Fall of slate	Jaw broken	Consolidation Coal Co.	Monroe
March	14	Allen Coulter	Miner	Fall of slate	Body bruises	Coulter & Sons	Mahaska
March	18	Mike Klobnak	Driver	Caught by car	Foot mashed	Crescent Coal Co.	Mahaska
March	20	Lawrence Sharp	Trapper	Run over by car	Arm and leg broken	Consolidated Coal Co.	Monroe
March	29	Ed Williams	Shot exam'r	Premature shot	Arm broken	Consolidated Coal Co.	Monroe
April	11	Wm. Conners	Driver	Run over by car	Hip dislocated	Ottumwa Brick & Cons. Co.	Wapello
April	18	Jake Cadle	Miner	Fall of slate	Ankle broken	Consolidated Coal Co.	Monroe
April	19	Jake McKerson	Driver	Fell into car	Arm broken	Consolidated Coal Co.	Monroe

May	29	Emmet Jones	Driver	Run over by car	Leg cut and bruised	Phillips Fuel Co.	Wapello
June	3	William Sinks	Miner	Fall of slate	Leg broken	Crescent Coal Co.	Mahaska
June	6	E. D. Long	Shot exam'r	Fall of slate	Leg broken	Ottumwa Brick & Cons. Co.	Wapello
June	29	Ralph Rauch	Miner	Fall of slate	Leg broken	Bolton & Hoover Co.	Mahaska
July	9	Frank Solentik	Miner	Fall of slate	Back bruised, face cut	Crescent Coal Co.	Mahaska
August	19	Wm. J. Smith	Motorman	Run over by car	Foot mashed	Consolidated Coal Co.	Monroe
November	9	Harry Lile	Miner	Run over by car	Leg broken	Phillips Fuel Co.	Wapello
1908.							
January	2	Wm. Lewis	Shot firer	Premature explosion	Injured about head	National Union Coal Co.	Mahaska
January	7	John White	Mine forem'n	Fall of slate	Leg broken	Phillips Fuel Co.	Wapello
January	8	Andy Crambruzzie	Miner	Fall of slate	Injured hips and back	Crickett Coal Co.	Mahaska
1907.							
December	12	O. L. Johnson	Miner	Caught by car	Arm broken	Crescent Coal Co.	Mahaska
1908.							
March	14	John Witham	Miner	Fall of coal	One leg injured	Standard Coal Co.	Wapello
1907.							
December	14	Wm. Mitchell	Miner	Fall of slate	Bruised about hips	J. F. Hays Coal Co.	Marion
August	23	Albert Erscine	Cager	Fall of coal	Hurt about head	Phillips Fuel Co.	Wapello
November	9	Harry Dial	Driver	Run over by car	Leg broken	Phillips Fuel Co.	Wapello
1908.							
January	7	Jack White	Pit boss	Fall of slate	Broken leg	Phillips Fuel Co.	Wapello
February	20	Wm. Foulkes, Jr.	Driver	Foot caught in tail rope	Bone in foot broken	Phillips Fuel Co.	Wapello
February	26	Wm. Day	Miner	Fall of slate	Bruised back and leg	Phillips Fuel Co.	Wapello
March	3	John D. Lilly	Miner	Fall of slate	Bruised body	Phillips Fuel Co.	Wapello
1907.							
October	26	Robert Wilson	Miner	Fall of slate	Back strained	Crawford Coal Co.	Mahaska
1908.							
January	6	M. Phellen	Miner	Premature explosion	Ankle broken	Crawford Coal Co.	Mahaska
March	30	John Fedro	Driver	Fall of rock	Body crushed	Western Fuel Co.	Mahaska
June	6	Ollie Crutche	Miner	Caught by car	Badly bruised	Western Fuel Co.	Mahaska
1907.							
September	10	August Pomier	Driver	Run over by car	Leg broken	Rex Fuel Co.	Mahaska
May	26	J. C. Ansberry	Miner	Fall of slate	Back and hips hurt	Rex Fuel Co.	Mahaska
May	26	Joe West	Driver	Fall of slate	Ankle dislocated	Bolton & Hoover Coal Co.	Mahaska
May	26	Dan Graves	Driver	Struck by tail rope	Leg broken	Bolton & Hoover Coal Co.	Mahaska
1907.							
December	8	Sam Crawford	Miner	Fall of slate	Body bruised	Wm. Miller Coal Co.	Marion
August	28	Frank Reed	Shaft sinker	Cut by pipes	Hand cut	Phillips Fuel Co.	Wapello

MONROE COUNTY (PART).

The part of Monroe county in District No. 2 has thirteen mines and produced in the last biennial period 1,961,160 tons of coal, giving employment to 960 miners and 547 other employees.

Since the last report was made the following new mines have been opened: Central Coal Company, Nos. 3 and 4, Hickory, and the Coalfield Coal Company has a new shaft under development. In all probability the Consolidation Coal Company will commence sinking Shaft No. 15, to the south and east of their Mine No. 11, and the Crescent Coal Company will put down a shaft to the east of Fraker, and it may be other new mines will be in course of construction before this report will be in print. The following mines were abandoned in the same period: Consolidation Coal Company, Nos. 11 and 13, Buxton, and the Central Coal Company, No. 1, Hickory.

The mines in this county connected with the Chicago & North-Western Railway are located in one of the richest coal deposits of the district. The Consolidation Coal Company has at present two mines in operation in the county and are by far the largest producers. The equipment and arrangement of their mines, both on the surface and under ground, are good and are made to handle a large tonnage. Most of the entry work and room turning is done with cutting machines. Haulage is done by the "Third Rail System," and much of the gathering from rooms and entries is done by both the third rail and trolley system. The mines on the whole are well-kept, and their system of stoppings and ventilation has much to be commended.

The mines of the company worked on an average 254 days in the year ending June 30, 1907, and 222 days during the year ending June 30, 1908.

Three fatal accidents occurred in and around the mines of this county belonging to this district during the year ending June 30, 1907, and one during the year ending June 30, 1908. In the first year 365,158 tons of coal were produced for every life lost. In the second year 865,687 were mined for every fatal accident. One life was lost for every 481 persons employed in the first year, and one life was lost for every 1,558 men employed in the second year.

MAHASKA COUNTY.

For many years Mahaska ranked first in the state in the production of coal, but of late years has fallen to fourth place. The total production of the county for the biennial period ending June 30, 1908, was 1,462,338 tons. This output came from 35 mines and gave employment to 1,031 miners and 515 other employees.

Since June 30, 1906, fifteen mines have been abandoned, the principal mines being the Whitebreast Fuel Company, Pekay; Lost Creek Coal Company, No. 3, Lost Creek; Garfield Coal Company, No. 2, Evans; Spring Creek Coal Company, Oskaloosa; Nagle Coal Company, Colon; and the National Union Coal Company, No. 1, Beacon. During the same period eleven new mines have been opened, the leading mines being Garfield Coal Company, No. 4, located about six miles west of Oskaloosa; Atwood Coal Company, four miles west of Rosehill; Bolton-Hoover Coal Company, No. 2, Bolton; National Union Coal Company, No. 2, Beacon, and the Consolidation Coal Company, No. 14, about two miles northwest of Buxton. The last mine named is in course of development. The entries are driven to the boundary line before rooms are turned, and the development of the mine will be a retreat toward the main hoisting shaft.

The shipping mines of the county worked on an average of 236 days during the year ending June 30, 1907, and 234 days during the year ending June 30, 1908.

Six fatal accidents occurred in and around the mines of the county during the year ending June 30, 1907, and four during the year ending June 30, 1908. In the first year 114,968 tons of coal were produced for every life lost, and in the second year 193,117 tons were mined for every fatal accident. One life was lost for every 251 persons employed in the first year, and one life lost for every 264 men employed in the second year.

MARION COUNTY.

Thousands of acres of land in this county have been prospected and found to be underlaid with rich deposits of coal ranging in thickness from three to nine feet and at present owned by railroad companies and other big corporations. When their holdings in other counties cease to be productive or not sufficient to supply the demand, it is reasonable to presume that they will then develop their properties in this county, and undoubtedly the day is not far off when mining in Marion county will be carried on far more extensively than at the present time.

There are at present twenty mines in operation in the county. A large number of them, however, are local mines. The largest mines are operated by the Mammoth Vein Coal Company, Everist, and the English Creek Coal Company, Flagler.

The total production of the county during the biennial period ending June 30, 1908, was 722,226 tons, which gave employment to 526 miners and 207 other employees.

The shipping mines worked on an average 230 days in the year ending June 30, 1907, and 216 days in the year ending June 30, 1908. The number of fatal accidents for the same period were one for the first year and two for the second year; 394,481 tons of coal were produced for every life lost in the year ending June 30, 1907, and 163,873 tons for every life lost the year ending June 30, 1908. One life was lost for every 775 men employed during the above period in the first year, and one for every 347 men employed in the second year.

WAPELLO COUNTY.

From what record we have, Wapello county has produced since the year 1860 about 7,330,000 tons of coal, and if there had been a record kept of the output of the small mines it would exceed this several thousand tons. In the year 1862 the county produced 13,106 tons, which at that time was nearly three times as much as any other county in the state. The output of the county steadily increased from the above date until it reached its highest production, in 1888, of 380,395 tons. In 1903 and 1905 it came very near equalling the record of 1888, with a production of 365,165 and 368,029 tons, respectively.

There are now operating in the county four shipping mines and sixteen local mines, giving employment to 418 miners and 225 other employees. Their total production for the biennial period was 517,770 tons. The average number of days worked by the shipping mines during the year ending June 30, 1907, was 265, and during the year ending June 30, 1908, was 246. The number of fatal accidents during the same period were two in the first year and two in the second year. In the first year referred to above 136,778 tons of coal were mined for every fatal accident, and 122,107 tons were mined in the second year. One life was lost for every 315 men employed in and around the mines in the first year of the biennial period, and one life lost for every 280 men employed in the second year.

VAN BUREN COUNTY.

In Van Buren county coal is found in different places in the county in basins of limestone. These pockets comprise from three to thirty acres in extent. The larger pockets of the county have been worked out. One pocket north of Douds-Leando has been exhausted, and still north of this basin other coal pockets exist and are being mined at the present time. The mines that are located north of Douds furnish coal to the Des Moines Valley branch of the Rock Island Railroad, and so operate the most of the year. Other small mines in the county are operated for local trade, and but little coal is mined except during the fall and winter. The coal measures in Van Buren county will not exceed a thickness of 130 feet. The seams of coal found vary in thickness from two to four feet and the quality of the coal is very good.

KEOKUK COUNTY.

Keokuk county lies well toward the eastern margin of the Iowa coal field, and consequently the coal measure strata covering it are quite thin. It does not seem probable that in this county the coal measure strata underlie but a small part of the county, perhaps seventy-five square miles of territory. There are perhaps fifty square miles in and around What Cheer which are underlaid by coal measures, but only a portion of this contains coal. Formerly there were some extensive mines in operation in the vicinity of What Cheer, but this field is about worked out now, and at the present time there are but few mines in operation, and these operate only to supply the local demand of What Cheer and vicinity.

WARREN COUNTY.

Coal has been mined in this county for more than forty years. More than one hundred shafts, drifts and slopes have been opened and worked during the period stated above. The coal seams are many and found at various depths. The shafts in the county run from fifteen to eighty feet deep. Some of the coal is mined by slopes and in some cases by stripping. It is evident that most of the mines operated in the county are what are termed farmers' mines, the mines being local mines and operated only during the fall and winter months, and usually not more than five or six men are required at each mine.

At one time several shipping mines were operated near Summerset and considerable coal was shipped, but of late years no mines have been operated except for local trade. Coal is found in nearly every township in the county, and the seams vary in thickness from 18 inches to 4½ feet. However, but little of the latter thickness is found. It is quite likely that in the coming years, with an increased demand, more and better coal mining machinery will be used and the industry will begin to mean something to the county.

JEFFERSON COUNTY.

The Des Moines coal measures extend over the most part of Jefferson county, and coal has been found in almost every township in the county. While this is true, no extensive seams have been found and no extensive mines are now in operation in the county, and what coal is mined is mined for the local trade only. There are now no railroad mines in the county, but formerly coal was mined and shipped quite extensively in the vicinity of Perlee. Extensive prospecting may develop considerable coal in the county, and in the years to come the industry may mean more to the county than at the present time.

DAVIS COUNTY.

Davis county, surrounded as it is by coal producing counties, has never been noted for its coal production. The entire county is doubtless underlaid by valuable coal deposits, but because of the thick beds of drift there are exposures of coal strata in but few places. The prospecting in the county has been unsuccessful in the most part, as drill holes have not penetrated through the glacial covering.

Mines at present are operated near Laddsdale, in the northeast part of the county; at Carbon, in the north part of the county, and near Floris. Along Soap Creek are a number of exposures. We understand that a prospect hole put down near Bloomfield a number of years ago penetrated three coal seams of six to eighteen inches in thickness.

It is probable that the Mystic seam, in Appanoose county, extends only over a small portion of Davis county. In the northwest corner of the county deposits of coal also probably occur, since extensive mines are operated a few miles away in Monroe county. The shaft operated near Laddsdale works nearly four feet of solid coal. It is hoped that thorough prospecting in the county will be carried on to determine beyond a doubt the extent of her coal measures.

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT.

MAHASKA COUNTY.

Name of Company	Superintendent	Postoffice Address	Shaft of Slope	Plan of Working	How Venti-lated	Power Used	Shipping or Local
Bolton-Hoover Coal Co. No. 1	W. H. Braniger	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping
Bolton-Hoover Coal Co. No. 2	W. H. Braniger	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping
Nelson & Shoemaker Coal Co.	W. R. Nelson	Oskaloosa	Shaft	Room and pillar	Grate	Horse	Local
F. R. Shultz Coal Co.	F. R. Shultz	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local
Garfield Coal Co. No. 3	J. H. Ramsay	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping
Garfield Coal Co. No. 4	J. H. Ramsay	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping
Isaac Davis & Son	Isaac Davis	Oskaloosa	Slope	Room and pillar	Furnace	Horse	Local
David Lewis & Son	David Lewis	Beacon	Slope	Room and pillar	Furnace	Horse	Local
Levi Wassenchove Coal Co.	Levi Wassenchove	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local
Barrowman & Oakley Coal Co.	R. R. Barrowman	Oskaloosa	Shaft	Room and pillar	Fan	Horse	Local
Cunningham Coal Co.	E. A. Cunningham	Oskaloosa	Shaft	Room and pillar	Furnace	Horse	Local
Crescent Coal Co.	W. S. White	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping
Rex Fuel Co.	Clarence Durfee	Bussey	Shaft	Room and pillar	Fan	Steam	Shipping
Allen Colters & Sons	Allen Colter	Beacon	Shaft	Room and pillar	Fan	Horse	Local
W. B. Rogers Coal Co.	W. B. Rogers	Olivet	Shaft	Room and pillar	Fan	Steam	Shipping
Charles Feaster Coal Co.	Charles Feaster	Rosehill	Shaft	Room and pillar	Furnace	Horse	Local
Deaver & Toy Brothers	William Deaver	Beacon	Shaft	Room and pillar	Furnace	Horse	Local
Atwood Coal Co.		Blythe	Shaft	Room and pillar	Fan	Steam	Shipping
Eveland Coal Co.	John Price	Eveland	Shaft	Room and pillar	Fan	Steam	Shipping
Kennebec Coal Co.	A. Love	Givin	Shaft	Room and pillar	Furnace	Horse	Local
Western Fuel Co.	G. E. Fraker	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping
National Coal Co.	Charles Logue	Beacon	Slope	Room and pillar	Fan	Steam	Shipping
Amos Gray Coal Co.	Amos Gray	Eddyville	Shaft	Room and pillar	Grate	Horse	Local
Clement & Edwards Coal Co.	Dan Edwards	Beacon	Slope	Room and pillar	Furnace	Steam	Shipping
Drew & Dunning Coal Co.	James Dunning	Eddyville	Slope	Room and pillar	Furnace	Horse	Local
Albers & Walraven Coal Co.	T. H. Albers	Eveland	Shaft	Room and pillar	Furnace	Horse	Local
R. L. Parcell	R. L. Parcell	Beacon	Slope	Room and pillar	Furnace	Horse	Local
Jas. Studham Coal Co.	Jas. Studham	New Sharon	Shaft	Room and pillar	Furnace	Horse	Local
American Coal Co.	William Phillips	Oskaloosa	Slope	Room and pillar	Fan	Steam	Shipping
Crawford Coal Co.	John Crockshanks	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping
Crickett Coal Co.	James Neagle	Crickett	Shaft	Room and pillar	Fan	Steam	Shipping
Williams Bros. Coal Co.	W. S. Williams	New Sharon	Slope	Room and pillar	Fan	Steam	Local
W. S. Williams	W. S. Williams	New Sharon	Slope	Room and pillar	Furnace	Steam	Local
Greenridge Coal Co.	J. M. Timbrell	Laconta	Shaft	Room and pillar	Fan	Steam	Shipping
Consolidation Coal Co.	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping

MONROE COUNTY.

Consolidation Coal Co. No. 10	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping
Consolidation Coal Co. No. 11	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping
Consolidation Coal Co. No. 12	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping
Consolidation Coal Co. No. 13	B. C. Buxton	Buxton	Shaft	Room and pillar	Fan	Steam	Shipping
Regal Coal Co.	G. E. Fraker	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping
Central Coal Co. No. 2	T. L. Evans	Hickory	Slope	Room and pillar	Furnace	Steam	Shipping
Central Coal Co. No. 3	T. L. Evans	Hickory	Slope	Room and pillar	Furnace	Steam	Shipping
Central Coal Co. No. 4	T. L. Evans	Hickory	Shaft	Room and pillar	Furnace	Steam	Shipping
Coalfield Fuel Co.	Chas. Bloomfield	Coalfield	Slope	Room and pillar	Fan	Steam	Shipping
Bethel Coal Co.	Jas. Boden	Coalfield	Slope	Room and pillar	Furnace	Horse	Shipping
Reeves Coal Co.	J. O. Reeves	Coalfield	Slope	Room and pillar	Furnace	Horse	Local
Thomas Bridges Coal Co.	Thomas Bridges	Eddyville	Slope	Room and pillar	Furnace	Horse	Local
Abram Hiltabidle Coal Co.	Abram Hiltabidle	Eddyville	Slope	Room and pillar	Furnace	Horse	Local

MARION COUNTY.

English Creek Coal Co.	J. H. Ramsay	Oskaloosa	Shaft	Room and pillar	Fan	Steam	Shipping
William Miller Coal Co.	William Miller	Knoxville	Slope	Room and pillar	Furnace	Horse	Local
J. T. Hays Coal Co.	J. T. Hays	Knoxville	Slope	Room and pillar	Furnace	Horse	Local
Samuel Ruckman	Samuel Ruckman	Knoxville	Slope	Room and pillar	Furnace	Horse	Local
Brennan & White Coal Co.	John Brennan	Hamilton	Slope	Room and pillar	Natural	Horse	Local
Mammoth Vein Coal Co. No. 5	Lawrence Love	Everist	Shaft	Room and pillar	Fan	Steam	Shipping
Mammoth Vein Coal Co. No. 9	Lawrence Love	Everist	Slope	Room and pillar	Furnace	Horse	Shipping
Mammoth Vein Coal Co. No. 11	Lawrence Love	Everist	Slope	Room and pillar	Furnace	Electric	Shipping
Mammoth Vein Coal Co. No. 10	Lawrence Love	Everist	Slope	Room and pillar	Furnace	Horse	Shipping
Union Coal Co.		Pella	Shaft	Room and pillar	Fan	Steam	Local
Lose Vein Coal Co.	Frank Campbell	Bussey	Slope	Room and pillar	Furnace	Horse	Local
Thomas Clark	Thos. Clark	Flagler	Slope	Room and pillar	Furnace	Horse	Local
Lone Star Coal Co.	Phil Bishop	Harvey	Slope	Room and pillar	Furnace	Horse	Local
Harvey Hays Coal Co.	Harvey Hays	Knoxville	Slope	Room and pillar	Furnace	Horse	Local
Buwaldo Brothers Coal Co.	J. Buwaldo	Pella	Shaft	Room and pillar	Fan	Steam	Local
J. W. Swingle Coal Co.	J. W. Swingle	Marysville	Slope	Room and pillar	Furnace	Horse	Local
Lone Star Coal Co.	J. L. Rickabaugh	Otley	Slope	Room and pillar	Furnace	Horse	Local
Youkon Coal Co.	J. B. Vreezelaar	Otley	Slope	Room and pillar	Furnace	Steam	Local
Knoxville Coal Co.	Harry Booth	Knoxville	Slope	Room and pillar	Furnace	Horse	Shipping

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN SECOND DISTRICT—CONTINUED.

WAPELLO COUNTY.

Name of Company	Superintendent	Postoffice Address	Shaft or Slope	Kind of Working	How Venti-lated	Power Used	Shipping or Local
William Dempster	William Dempster	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local
Henry McNabb & Sons	Henry McNabb	Ottumwa	Shaft	Room and pillar	Furnace	Horse	Local
Standard Coal Co.	Job Hyde	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
Ottumwa Brick & Construction Co.	Thomas Williams	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping
Anchor Coal Co.	W. R. Daun	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping
Star Coal Co.	Samuel Tovera	Ottumwa	Slope	Room and pillar	Fan	Steam	Local
Phillips Fuel Co. No. 5	E. J. Erskine	Rutledge	Shaft	Room and pillar	Fan	Steam	Shipping
Phillips Fuel Co. No. 7	E. J. Erskine	Rutledge	Shaft	Room and pillar	Fan	Steam	Shipping
Roseland Coal Co.	Howel Price	Ottumwa	Shaft	Room and pillar	Fan	Steam	Shipping
J. J. Halton Coal Co.	J. J. Halton	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local
Manuel Arandus Coal Co.	Manuel Arandus	Ottumwa	Slope	Room and pillar	Furnace	Horse	Local
Brown Bros. Coal Co.	Charles Brown	Ottumwa	Shaft	Room and pillar	Fan	Steam	Local
J. S. Davis & Sons	J. S. Davis	Eddyville	Slope	Room and pillar	Furnace	Horse	Local
Geo. Ryerson Coal Co.	Geo. Ryerson	Kirkville	Shaft	Room and pillar	Furnace	Horse	Local
Geo. Knight Coal Co.	Geo. Knight	Kirkville	Shaft	Room and pillar	Furnace	Horse	Local
J. M. Sickles Coal Co.	J. M. Sickles	Eldon	Shaft	Room and pillar	Furnace	Horse	Local
McIntosh & Crane Coal Co.	William McIntosh	Eldon	Shaft	Room and pillar	Furnace	Horse	Local
W. A. Goodwin Coal Co.	W. A. Goodwin	Eldon	Shaft	Room and pillar	Furnace	Horse	Local
John Kelly & Sons	John Kelly	Eldon	Shaft	Room and pillar	Furnace	Horse	Local
James Newell Coal Co.	James Newell	Blakesburgh	Shaft	Room and pillar	Furnace	Steam	Local

VAN BUREN COUNTY.

H. Findlay & Son Coal Co.	H. Findlay	D'ds-Leando	Shaft	Room and pillar	Furnace	Horse	Shipping
Ratcliff Coal Co.	H. L. Ratcliff	D'ds-Leando	Shaft	Room and pillar	Furnace	Horse	Shipping
Felmelee Coal Co.	A. M. Felmelee	D'ds-Leando	Shaft	Room and pillar	Furnace	Horse	Shipping
Cahill Coal Co. No. 1	P. M. Cahill	Farmington	Shaft	Room and pillar	Furnace	Horse	Local
Cahill Coal Co. No. 2	P. M. Cahill	Farmington	Shaft	Room and pillar	Furnace	Horse	Local
Hessler Coal Co.	John Hessler	Farmington	Shaft	Room and pillar	Furnace	Horse	Local
H. Knott Coal Co.	H. Knott	Farmington	Slope	Room and pillar	Furnace	Horse	Local
A. R. Gardener Coal Co.	A. R. Gardener	Bentonsport	Slope	Room and pillar	Furnace	Horse	Local

WARREN COUNTY.

Diamond Coal Co.	W. A. Jones	Lacona	Shaft	Room and pillar	Furnace	Horse	Local
Miller & Hanson Coal Co.	C. H. Hanson	Carlisle	Shaft	Room and pillar	Natural	Horse	Local
A. B. Keeney Coal Co.	A. B. Keeney	Carlisle	Shaft	Room and pillar	Furnace	Horse	Local
Middle River Coal Co.	Henry Castings	Ford	Shaft	Room and pillar	Furnace	Horse	Local
B. D. Clark Coal Co.	B. D. Clark	Norwalk	Shaft	Room and pillar	Furnace	Horse	Local
Bales Coal Co.	N. D. Bales	Milo	Shaft	Room and pillar	Furnace	Horse	Local

JEFERSON COUNTY.

Bates & Spratt Coal Co.	H. M. Bates	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local
Fairfield Coal Co.	Job Deer	Fairfield	Shaft	Room and pillar	Furnace	Horse	Local

KEOKUK COUNTY.

Armstrong Bros. Coal Co.	Thos. Armstrong	What Cheer	Shaft	Room and pillar	Furnace	Horse	Local
Lee Brothers Coal Co.	James Lee	What Cheer	Shaft	Room and pillar	Furnace	Steam	Local
Maxwell Coal Co.	Robt. Maxwell	What Cheer	Shaft	Room and pillar	Jet	Horse	Local
Carson Bros. Coal Co.	Thos. Carson	What Cheer	Shaft	Room and pillar	Furnace	Horse	Local
What Cheer Coal Co.	Jas. A. Cowan	What Cheer	Shaft	Room and pillar	Grate	Horse	Local

DAVIS COUNTY.

Soap Creek Coal Co.	Harry Darrah	Carbon	Slope	Room and pillar	Furnace	Horse	Shipping
George Clark Coal Co.	George Clark	Floris	Slope	Room and pillar	Natural	Horse	Local
George Christy Coal Co.	George Christy	Floris	Slope	Room and pillar	Grate	Horse	Local
James Fayne	James Fayne	Eldon	Slope	Room and pillar	Furnace	Horse	Local
Henry Hastings	Henry Hastings	Floris	Slope	Room and pillar	Furnace	Horse	Local

TABLE No. 1.

SHOWING NUMBER OF MINES, OUTPUT OF COAL, NUMBER OF MINERS AND OTHER EMPLOYES IN DISTRICT NO. 2, FOR YEAR ENDING JUNE 30, 1907.

Name of County	Number of mines	Amount of coal of all kinds produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of employes
Monroe County (part)	9	1,095,473	1,033	326	85	1,444
Mahaska	35	699,870	1,001	345	179	1,525
Marion	18	394.481	555	151	69	775
Wapello	19	273,556	449	107	73	629
Keokuk	5	15,000	29	7	6	42
Van Buren	6	13,050	42	6	13	61
Warren	4	3,565	23	2	3	28
Davis	1	2,410	10	2	4	16
Jefferson	2	1,900	4	1	1	6
Total	99	2,489.305	3,146	947	433	4,526

TABLE No. 2.

SHOWING NUMBER OF MINES, OUTPUT OF COAL, NUMBER OF MINERS AND OTHER EMPLOYES IN DISTRICT NO. 2, FOR YEAR ENDING JUNE 30, 1908.

Name of County	Number of mines	Amount of coal of all kinds produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of employes
Monroe County (part)	13	865,687	876	568	114	1,558
Mahaska	35	772,468	1,075	330	181	1,586
Marion	20	327,745	498	134	61	693
Wapello	20	244,214	388	106	65	559
Keokuk	5	11,900	24	5	6	35
Van Buren	8	17,518	39	10	17	66
Warren	6	5,950	29	3	5	37
Davis	5	4,364	22	3	8	33
Jefferson	2	2,000	8	2	2	12
Total	114	2,251,846	2,959	1,161	459	4,579

BIENNIAL REPORT OF THE

THIRD DISTRICT.

EMBRACING THE FOLLOWING COUNTIES:

POLK,	JASPER,
WEBSTER.	BOONE,
GREENE,	GUTHRIE,
SCOTT,	DALLAS,

EDWARD SWEENEY, Inspector,
Des Moines, Iowa.

LETTER OF TRANSMITTAL.

HON. ALBERT B. CUMMINS, Governor of Iowa:

SIR,—I have the honor to submit herewith the report of the Third Inspection District, covering the biennial period ending June 30, 1908.

Very respectfully submitted,

EDWARD SWEENEY, Inspector.

REPORT OF THE THIRD DISTRICT.

The coal industry of the Third District for the biennial period will not show any material increase, the facts being suggestive of the lull that has marked industrial enterprise during the past year. The causes operating to make a quiet wage market have not been committed to the writer for definition. Stocks and industrial labor, and capital all seem to have shared in the loss consequent upon the financial depression of 1907. The mining industry of the State of Iowa has enjoyed much better conditions than has existed in other of the coal producing states; the operations of our coal properties has been more steady, and there has been much less friction among the forces which give life to Iowa wage labor industry. During the agitation which for a time became quite acute, when money was scarce and hard to get, employers were unable to secure from the banks cash with which to meet their wage pay roll. There was fear; there was suspicion, and wage toilers in neighboring states were having trouble. It was then intelligence and wisdom played its part. There seems to be no limit to the good that is possible to our mining labor and capital through the joint conciliatory movement, which has existed between our coal operators and coal miners for the past ten years. Heartily with the idea, and generous in the practice of conciliation and arbitration our Iowa coal miners and operators have been to the front on every question raised in the national work. Yet when interstate competitive questions affecting the larger coal producing states of the central west threatened conflict, as a remedy, the strong minds of Iowa's mining fraternity kept their ears close to the ground and kept their hearts and hands locked in resolution for peace and fair play. They realized that jointly they must, very largely by their own efforts, make for the good or share in full measure the bad conditions that might come to the business. The motto of peace and fair play, happily with us, seems to be the one governing in the Iowa coal mining industry. We have passed through the financial stringency period with no scars of battle and while the slack

work period has continued to some extent, I am pleased to report our mining conditions much better from every point of view, than those that govern in neighboring coal producing states.

Some changes have taken place during the biennial period which are of no small significance to the Iowa coal mining industry. It is said that merit shall have its reward. While there is no doubt but that many worthy men or women have not realized in life the reward which they merited, it is, however, the safest in life that we strive to be right in doing good, and for the most good possible. The Iowa miners lost their president of the past several years by his election to the national vice presidency of the organization, but their loss has been a gain to the mining industry of the entire nation. More than that, the new field of Mr. John P. White's labors will bring his personality and resourcefulness in touch with the industrial life of the nation. Wage labor everywhere has learned that the Iowa miners have had a chief and leader equal to the best in the nation. The belief is general that Iowa's favorite son will prove himself equal to every duty and worthy of greater honors.

Mr. John P. Reese, who went from the miners ranks into the responsible position of commissioner for the Iowa Coal operators, and who has filled the position of commissioner ever since the office was created several years ago, a sort of a peace envoy, has recently resigned such position and has become mine superintendent at Buxton, for the Northwestern mining interests. It is to be hoped that Mr. Reese in his new field of labor may win new laurels to the fame and honor he has already achieved.

As successor to the miners retiring president and the operators commissioner, Mr. W. W. White of Appanoose county, and formerly Vice President, has been advanced to the state presidency for our Iowa miners, while Mr. Joseph Sharp, who for many years has been active as a leader for the miners, succeeds John P. Reese, as a commissioner for the Iowa Coal Operators' Association. Both of these men have had years of practical experience in mining affairs and will, no doubt, prove themselves worthy of the confidence reposed in them. We wish them every possible success.

A number of new mines have been developed and put in operation during the past two years, and many valuable improvements have been made all of which will be noted in the report covering the coal production by counties.

POLK COUNTY.

The production of coal mined in Polk county for the first half of the biennial period ending June 30, 1908, amounted to 1,425,876 tons. This was a net gain for the county over the preceding year of 159,652 tons. During the first year of the biennial period which ended June 30, 1907, 3,168 persons were given employment in and around the mines of the county. More than a million and a half dollars in wages were paid these employes during the year, and the most of this money found its way into the channels of trade in Polk county. In other words more than fifty thousand dollars is paid to the miners of Polk county every pay day, which the state law specifies shall be the first Saturday after the fifth and fifteenth of each month.

During the last fiscal year of the biennial period which ended June 30, 1908, the production of Polk county amounted to 1,358,097 tons. This was a net decrease from the amount mined the preceding year of 67,779 tons. The decreased tonnage may be explained by the fact that during the biennial period a number of mines in the county were abandoned. However, the companies abandoning these mines have in a number of cases already secured new leases and begun new developments, so that in the coming year we look for the production in the county to increase.

During the biennial period a number of fires occurred at the mines of the county destroying considerable property and interfering, in a measure with the coal production of the county. On the morning of March 6, 1907, a fire destroyed the boiler and engine house of the Madison Coal Company. A delay of two weeks in the operation of the mine was caused by this fire. On the morning of November 12, 1907, a fire occurred at the Maple Block mine east of Des Moines, destroying the scales, scale house and the box car loader. Operations were stopped for but a few days here on account of this fire. Sometime in October, 1907, fire broke out in the Marquisville mine of the Des Moines Coal & Mining Company, and so serious did this prove that it was deemed advisable to abandon the mine, which was done. The company just previous to this fire had extended the tailrope and were preparing for a winter's work, intending to abandon the mine April 1, 1908. But little loss of machinery and mine fixtures attended this fire.

A number of mines in Polk county were abandoned during the biennial period. The Keystone and Center mines were abandoned in the northwest part of the city. The Des Moines Coal & Mining Company abandoned its mine at Marquisville, north of Des Moines. The Elko and Capital mines were abandoned in south Des Moines, and the Diamond Jo mine at Runnells was abandoned. The Smith-Lowe Company also abandoned its mine No. 3 at Carbondale. The abandonment of these mines while having some effect on the production of coal for the year just ended, are not likely to affect the coal production of the county in the future very much, as has already been stated above a number of these companies are already preparing to open new mines in the county, and these new mines will be larger and better equipped and will thus add to the production of the county. The Keystone Company is already

sinking a shaft just to the north of Valley Junction, where they have a good field of coal, and they will have connection with the Chicago, Milwaukee & Saint Paul Railway, and become a shipping mine. The Gibson Company are developing a new mine near Clive and will also have connection with the Milwaukee road. Their old mine near Altoona is still being operated. The Valley Union Coal Company have opened a new mine to the south of Valley Junction. They have no railroad connection, but will operate to supply the local trade of Valley Junction. The Beck Coal Company have opened a new mine to the southeast of the city, and the Caleb Johns Company have a new mine to the south side. Both of these mines are doing a good business. Blount & Evans are opening a new mine near the Army Post and expect soon to be ready for business. About a year ago the Anderson Coal Company opened up a new mine near Ankeny. They have connection with the North-Western Railroad and are doing a good business. The new mine No. 2 of the Enterprise Coal Company at Enterprise is being developed nicely and bids fair to be a good producer. The Swanwood Coal Company are opening up a new mine to the east of the lease of the Des Moines Coal & Mining Company, near Marquisville. They will be ready for business soon. Other companies that will open up new mines in the county soon are the Capital and Center companies.

With the development of these new mines Polk county will no doubt show a large increase in her production the coming year, and we confidently expect the production of the county to reach close to, if not above the two million mark.

JASPER COUNTY.

Coal has been mined in Jasper county for more than fifty years. The first coal in the county was mined at the Slaughter Bank, one and one-half miles east of Colfax, in section 32 of Sherman township in 1850. Coal was also mined along Cherry Creek in Newton township at an early date. The First Biennial Report of the Iowa State Mine Inspector contains the following estimate:

> A majority of the superficial area of this county is barren of coal; the most of the coal lies in the southwest portion of the county, on North Skunk River and its tributaries, and the tributaries of the Des Moines River, but not more than the superficial area of one township is underlaid with coal of workable thickness.

Later exploitations have proved the extreme conservatism of these statements. This county produced in 1903, 323,312 tons of coal; in 1904, 302,599 tons; in 1905, 305,027 tons; in 1906, 333,307; in 1907, 385,298 tons, and in 1908, 467,552 tons.

Some coal is mined near Newton; some near Monroe and Prairie City, but the most of the coal now taken out is mined near Seevers and Colfax. The largest shipping mines in the county are located near Seevers and Colfax and are operated by the Colfax Consolidated Coal Company. The Warrick Bros.' mine also does a shipping business. All other mines in the county are local mines and for the most part are operated only during the fall and winter months. Employment is given to some seven

or eight hundred miners and other employes in and around the mines of this county.

For the biennial period ending June 30, 1908, there was reported to this office from Jasper county as occurring in and around the mines of the county, four fatal and nine non-fatal accidents.

BOONE COUNTY.

Boone county is surrounded on all sides by coal counties and has long been known among the leading producing counties of the state. Boone was one of the first counties in the state to assume prominence in the coal industry and mining has gone on steadily for upwards of a third of a century. In the central part of the county where coal has been taken out for the greatest length of time, two principal seams have been opened up. In the southwestern portion of the region, around Angus, several veins are known to exist. It is also quite probable that other beds than those at present generally known occur lower down. In fact some of the deeper borings in different parts of the county clearly indicate the presence of other coal horizons at greater depth than have yet been reached by shafts.

Formerly the largest mines in the county were operated at Angus or in that vicinity, but at present but little coal is mined there. At present mining operations are carried on in the vicinity of Boone, at Fraser, in the north part of the county and at Ogden west of Boone. Considerable mining was formerly done near Moingona, but at the present time but little coal is mined there. At Ogden a new mine was opened up about a year ago by the Ogden Coal Company. A vein of coal from three to five feet thick is encountered here at a depth of 270 feet. The coal is of good quality and extensive operations will be carried on by this company. On account of the above company finding a good vein at the depth stated, 270 feet, considerable deep prospecting is now going on and it is hoped that this will result in continued development of the coal industry of Boone county. While the tonnage for the past year will show a considerable falling off in the production, with the new mines in operation we look for the coming year to be fully as good as any year past. Boone county produced for the biennial period ending June 30, 1908, 456,573 tons of coal. Employment was given to more than eight hundred men in and around the mines of the county. But few accidents were reported to this office from this county for the biennial period.

DALLAS COUNTY.

Dallas county is underlain over nearly its entire area by the lower coal measure beds (Des Moines Formation) with their numerous veins of coal, and it is the prediction of many that the coal output of Dallas county within a very short period will place her well up in the line of coal producing counties in the Third District. This prediction would seem warranted from the showing made by this county within the last

three years. At the close of the fiscal year ending June 30, 1906, Dallas county was credited with but 9,888 tons of coal mined in the entire county. Possibly the tonnage was a little in excess of this as reports were not received from some of the small local mines. A year later the production of the county reached 31,370 tons, and for the fiscal year ending June 30, 1908, the tonnage of Dallas county reached the highest point in her history as a coal producing county, the tonnage for this last year being 108,700 tons mined. This increase of tonnage is because of the opening in the county of two good shipping mines; the Scandia mine near Scandia, and the High Bridge mine near High Bridge. Both of these mines are being developed nicely and we look for a larger output from them the coming year. It is quite likely that the experience of these mines will be the cause of other mines being opened up in county. We understand that already there has been done considerable prospecting, and this work is still going on with a view to the location of other mines in the county. Prior to the opening of the Scandia mine the prospecting had been at too shallow a depth. The vein at the Scandia mine is found at a depth of 170 feet.

But one fatal accident occurred in Dallas county for the period ending June 30, 1908.

WEBSTER COUNTY.

This county contains the most northerly coal mines in the state. Webster has long been known as one of the leading coal counties and is probably more favorably situated than any other coal county in the state for shipping its production northward to the large areas which have no fuel supply of their own.

The coal bearing strata probably have a considerable thickness in the upland away from the Des Moines river on both sides. Southward from Fort Dodge the coal measures rapidly thicken until at the southern border of the county they doubtless have a maximum thickness of not less than 150 to 200 feet. The coal bearing strata of Webster county are largely argillaceous shales with comparatively little sandstone. In these shales are intercallated numerous lenticular layers of coal which vary from three to five feet in thickness. Thus instead of one continuous seam there are a number of horizons yielding coal.

At the present time the mines of the county are clustered around a few places; near Coalville and Kalo on opposite sides of the Des Moines river seven miles below Fort Dodge, and at Lehigh about fifteen miles south of Fort Dodge. Formerly considerable coal has been mined at and near Fort Dodge and west of Fort Dodge on Lizard Creek, near Tara.

The coal of this county is of very good quality and finds a ready market. For the biennial year ending June 30, 1908, the coal production of Webster county amounted to but 177,394 tons. This is a falling off of nearly 50 per cent in the production of former years. We look, however, to see Webster county produce in the near future almost twice this tonnage. About four or five hundred men are given work in and around the mines of the county.

GREENE COUNTY.

The output of coal from Greene county has not been large for many years. Up to the present time workable seams have only been opened up in the eastern part of the county. At Grand Junction the Goodwin Brick & Tile Company have operated a mine for some years. The coal here is 18 inches in thickness, but beneath the coal is an excellent bed of fireclay having a very considerable thickness. It is used for the manufacture of brick and tile. In fact the mining of the clay forms the principal work of the mine, the coal taken out in connection with it being used largely for fuel in kilns. Eight miles south of Grand Junction at Rippey coal has been mined for years, and mining operations in this vicinity are still being carried on, but the mines are small and the production is not at all large. The mines here are operated only during the fall and winter months.

In the southeastern corner of the county coal has been extensively mined near Angus. There was at one time more than a dozen mines in operation in this part of the county.

But few mines are operated in the county now, and these are operated to supply the local demand for coal. No shipping mines in the county.

The output of coal produced in Greene county for the biennial period ending June 30, 1908, amounted to 44,531 tons. About one hundred persons are given employment through the coal mining industry of this county.

SCOTT COUNTY.

Mining operations have been carried on in Scott county for nearly half a century, and yet at no time in the history of the county has the yearly production of coal been large. This is because the coal lies in swamps or pockets and the seams are not extensive enough to cause large mining operations to be carried on. The largest tonnage produced by this county in any one year since 1900 was mined in 1902 when the production reached 28,973 tons.

Scott county has no railroad mines and but few men are employed in the mines of the county. Small mining operations are carried on near Jamestown and Buffalo. Each year mines are abandoned and others opened to take their place, but there is a noticeable decrease in the production from year to year. The seam of coal worked by the Jamestown mines was in the form of a trough being about two hundred yards wide and two miles long. In the center of this trough the coal was from 4 to 6 feet thick, thinning towards the edges. The seam near Buffalo is said to be four feet thick in places in some of the pockets or swamps where coal is found.

Scott county is the only county in the central part of the strata east of Jasper county in which coal is mined.

GUTHRIE COUNTY.

Coal has been mined in Guthrie county for many years, but owing to the lack of railroad facilities no shipping mines are operated, the mines in operation supplying the local trade only. Mining operations are carried on in the vicinity of Fanslers, Panora and Bayard, also along the Middle Raccoon river, near Stuart, and in both the northeast and the southwest corners of the county.

As the mines of the county are operated solely for the local trade they are not large and the equipment not extensive. They employ, usually, from five to twenty men during the fall and winter months and usually begin operations about August and September and continue until April. No facilities are provided for storing coal and considerable business is lost in this way, the mines aiming to keep pace with the demand only from day to day.

The vein of coal mined in tne county is not thick but in the most of places is of good quality and a free burner. The coal of this county is mined on the longwall system. But few mines in the county are equipped with fan ventilation, and the hoisting power at these mines consists of horse and gin.

A majority of the mines of the county are now provided with the second opening, and for the most part the mines conform to the requirements of the state mining laws. Only about a dozen mines are now operated. As no powder is used in mining the coal in these mines but few accidents occur.

During my inspections of the mines of this county I have found them for the most part satisfactory as regards sanitary conditions, safety appliances, etc. In a few cases I found mines with but one opening working more men than allowed by law. I immediately requested the operators to comply with section 2486 of the Iowa State Mining Laws.

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT.

POLK COUNTY.

Name of Company	Superintendent	Postoffice Address	Shaft or Slope	Plan of Working	How Venti-lated	Power Used	Shipping or Local
Saylor Coal Co. No. 2	J. D. Owen	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Smith-Lowe Coal Co. No. 4	E. C. Smith	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Norwood-White Coal Co.	David Reese	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Gibson Coal Co.	John Gibson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Maple Block Coal Co.	H. M. Shuler	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Bloomfield Coal Co.	George Yarn	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Keystone Coal Co.	E. M. Gray	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Eagle Coal Co.	E. A. Sayre	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
West Riverside Coal Co.	Jos. Jones	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Flint Brick & Coal Co. No. 2	Eugene Brecht	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Flint Brick & Coal Co. No. 3	Eugene Brecht	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Glenwood Coal Co.	Caleb Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Beck Coal Co.	Thos. Beck	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Madison Coal Co.	Ralph Madison	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Walnut Creek Coal Co.	Ben Bosley	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Economy Coal Co.	Peter Reynolds	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Hollingsworth Coal Co.	Geo. Simpson	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Bennett Bros. Coal Co.	John Bennett	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Coaldale Fuel Co.	John Owen	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Enterprise Coal Co. No. 1	G. E. Walters	Enterprise	Shaft	Room and pillar	Fan	Steam	Shipping
Enterprise Coal Co. No. 2	G. E. Walters	Enterprise	Shaft	Room and pillar		Steam	Shipping
Valley Coal & Mining Co.	H. Bosley	Commerce	Shaft	Long wall	Fan	Steam	Local
Iowa Coal Co.	John Thomas	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Shaw Coal Co.	Frank Adelfinger	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Merchant, Johnson & Co.	Jas. Marchant	Commerce	Shaft	Room and pillar	Natural	Steam	Local
Valley Union Coal Co.	B. C. Bosley	Valley Jct.	Shaft	Room and pillar	Fan	Steam	Shipping
Swanwood Coal Co.	Josh Norwood	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Western Coal & Mining Co.	Thos. Carpenter	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Anderson Coal Co.	W. B. Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Shipping
Avon Coal Co.	F. R. Shultz	Levy	Shaft	Room and pillar	Natural	Horse	Local
Blount & Evans Coal Co. No. 1	I. Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Blount & Evans Coal Co. No. 2	I. Evans	Des Moines	Shaft	Room and pillar	Fan	Steam	Local
Caleb Johns Coal Co.	Caleb Johns	Des Moines	Shaft	Room and pillar	Fan	Steam	Local

LIST OF COMPANIES, SUPERINTENDENTS, ETC., IN THIRD DISTRICT—CONTINUED.

WEBSTER COUNTY.

Name of Company	Superintendent	Postoffice Address	Shaft or Slope	Plan of Working	How Venti-lated	Power Used	Shipping or Local
Crooked Creek Coal & Railroad Co.	F. E. Wilson	Webster C'y.	Shaft	Long wall	Fan	Steam	Shipping
Craig & Dawson Coal Co.	Wm. Dawson	Kalo	Shaft	Long wall	Fan	Steam	Shipping
Rogers Coal Co.	E. W. Collins	Fort Dodge	Shaft	Room and pillar	Fan	Steam	Shipping
Johnson Coal Co.	A. P. Campbell	Kalo	Shaft	Long wall	Furnace	Horse	Shipping
Sam McClure Coal Co.	Sam McClure	Lehigh	Shaft	Long wall	Fan	Steam	Shipping
Butler & Rhodes Coal Co.	D. Rhodes	Coalville	Shaft	Long wall	Fan	Steam	Local

BOONE COUNTY.

Boone Coal & Mining Co. No. 5	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping
Boone Coal & Mining Co. No. 6	Robt. Kennedy	Fraser	Shaft	Long wall	Fan	Steam	Shipping
Eagle Coal Co.	W. J. Conway	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping
The Heaps Coal Co.	A. Heaps	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping
Rogers Coal Co.	Geo. W. Rogers	Incline	Shaft	Long wall	Fan	Steam	Shipping
Big Five Coal Co.	A. L. Carpenter	Moingona	Shaft	Long wall	Steam jet	Horse	Shipping
W. D. Johnson Coal Co.	H. H. Canfield	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping
Steve York Coal Co.	Steve York	Madrid	Shaft	Long wall	Furnace	Horse	Local
Heaps & Crowe Coal Co.	George Heaps	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping
John Birmingham Coal Co.	John Birmingham	Moingona	Shaft	Long wall	Exhaust of pump	Steam	Shipping
Rogers Coal Co.	P. J. Benson	Boonesboro	Shaft	Long wall	Fan	Steam	Shipping
Ogden Coal Co.	Thos. Carpenter	Ogden	Shaft	Room and pillar	Fan	Steam	Shipping
Smiley & Heaps Coal Co.	G. Heaps	Boonesboro	Shaft	Room and pillar	Fan	Steam	Shipping
Martin Pestotnik Coal Co.	Martin Pestotnik	Boone	Slope	Room and pillar	Natural	Horse	Local

JASPER COUNTY.

McAllister Coal Co.	——— McAllister	Newton	Shaft	Room and pillar	Fan	Steam	Local
Colfax Consolidated Coal Co. No. 7	Wm. Abrams	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping
Colfax Consolidated Coal Co. No. 8	Wm. Abrams	Colfax	Shaft	Room and pillar	Fan	Steam	Shipping
French Coal Co.	E. P. French	Newton	Shaft	Room and pillar	Natural	Steam	Local
Carson Bros. Coal Co.	A. Carson	Newton	Shaft	Room and pillar	Natural	Horse	Local
Lister Coal Co.	Alfred Lister	Newton	Shaft	Room and pillar	Furnace	Steam	Local
Warrick Bros. Coal Co.	John Warrick	Colfax	Shaft	Room and pillar	Fan	Horse	Shipping

Charley Calvert Coal Co.	Charley Calvert	Prairie City	Drift	Room and pillar	Furnace	Horse	Local
Snooks Bros. Coal Co.	Thos. Snooks	Newton	Shaft	Room and pillar	Natural	Horse	Local
Hanson & Meade Co.	J. A. Waddell	Prairie City	Shaft	Room and pillar	Exhaust of pump	Steam	Local
Jas. J. Gray Coal Co.	John Bruce	Monroe	Slope	Room and pillar	Furnace	Horse	Local
John Bruce Coal Co.	John Bruce	Monroe	Shaft	Room and pillar	Furnace	Horse	Local
GUTHRIE COUNTY.							
J. J. Clark	J. J. Clark	Bagley	Shaft	Long wall	Natural	Horse	Local
Batschlet & Marchant Coal Co.	John Marchant	Panora	Shaft	Long wall	Furnace	Horse	Local
J. W. King Coal Co.	J. W. King	Bagley	Shaft	Long wall	Fan	Horse	Local
Murphy & Mallon Coal Co.	W. F. Murphy	Yale	Shaft	Long wall	Furnace	Horse	Local
Scott Coal Co.	W. H. Scott	Yale	Shaft	Long wall	Natural	Horse	Local
Sipe & Hughes Coal Co.	J. D. Sipe	Yale	Shaft	Long wall	Furnace	Horse	Local
Mansell Coal Co.	John Mansell	Yale	Shaft	Long wall	Fan	Horse	Local
Reese Coal Co.	David Reese	Panora	Shaft	Long wall	Furnace	Horse	Local
W. N. Thomas Coal Co.	W. N. Thomas	Stuart	Shaft	Long wall	Furnace	Horse	Local
Clipper Coal Co.	Wm. Merchant	Bagley	Shaft	Long wall	Furnace	Horse	Local
Greenbrier Coal Co.	E. E. Cleaveland	Jamaica	Shaft	Long wall	Natural	Horse	Local
Butler & Gibson Coal Co.	Will Gibson	Yale	Shaft	Long wall	Natural	Horse	Local
Hughes & Son Coal Co.	Jesse Hughes	Yale	Shaft	Long wall	Fire in bucket	Horse	Local
L. A. Stoddard	L. A. Stoddard	Stuart	Shaft	Long wall	Natural	Horse	Local
GREENE COUNTY.							
Buckeye Coal Co.	M. Feith	Rippey	Shaft	Room and pillar	Natural	Horse	Local
Goodwin Coal Co.	Thos. Goodwin	Grand Jct.	Shaft	Long wall	Fan	Steam	Shipping
Willow Grove Coal Co.	H. A. McElheny	Angus	Shaft	Long wall	Fan	Steam	Local
Keystone Coal Co.	Wm. Bennett	Angus	Shaft	Long wall	Furnace	Horse	Local
Snake Creek Coal Co.	Geo. Richards	Rippey	Shaft	Room and pillar	Exhaust of pump	Steam	Local
DALLAS COUNTY.							
Hutchison Bros. Coal Co.	W. C. Hutchison	Dawson	Shaft	Room and pillar	Fan	Steam	Shipping
Scandia Coal Co.	F. H. Zook	Madrid	Shaft	Room and pillar	Fan	Steam	Shipping
High Bridge Coal Co.	R. Heaps	High Bridge	Shaft	Room and pillar	Fan	Steam	Shipping
SCOTT COUNTY.							
Sass Bros. Coal Co.	J. Sass	Jamestown	Shaft	Room and pillar	Furnace	Horse	Local
McCullough Bros. Coal Co.	Walter McCullough	Buffalo	Slope	Room and pillar	Grate	Horse	Local
Fidley & Anderson	Wm. Fidley	Jamestown	Shaft	Room and pillar	Furnace	Horse	Local
Buckmeyer Coal Co.	Jas. Buckmeyer	Buffalo	Shaft	Room and pillar	Grate	Steam	Local
Winfield Coal Co.	Frank Winfield	Buffalo	Shaft	Room and pillar	Grate	Horse	Local

ACCIDENTS.

The subject of mine accidents is one of profound concern, and while our coal area is free from Marsh gas and we are not likely to ever have to report a gas explosion disaster, nevertheless, we are much alarmed over the increased number of accidents occurring in our Iowa mines. The increase is shown as coming to miners while working at the face of their working places. I regret to state that this increase in accidents at the working face indicates a carelessness on the part of the miners themselves, which of late years is painfully common. Many of the non-English speaking miners, who have come to us in large numbers during the last few years, are decidedly reckless in their method of workmanship, and evidently incapable of comprehending our mining rules and the meaning of our mining laws. This situation seems to apply to the entire American bituminous coal mining industry of the mining states. Where Marsh gas is found in large deposits and is generated in mysterious large bodies, great catastrophes have occurred recently. Human lives have been taken by the hundreds, property has been destroyed to the extent of millions of dollars, widows and orphans have come upon the scene as if by magic, communities have been changed, like a flash, from healthy, happy homes to that of a charnel house scene. Death and sorrow, maddened grief, hundreds of strangers in a stranger's country carrying their young in a sort of frenzy to and fro—no words can picture the meaning or misery of such a situation, no sight is blacker than that of a mine disaster and the gloom of a mine rescuing scene. Every mine owner, every coal miner who has eyes to see, ears to hear, must learn the necessity for his co-operation in the needed work of observing rules and obeying the law. Bold and positive action is needed all along the line to stay the terrible human slaughter. The terrible fact that more men are killed and maimed in our American coal mines than are killed by war or pestilence is a sad commentary upon the order of things.

At last there seems to be an awakening. Government inquiry is being made, and plans are being suggested for relief. The national government is aroused and actively striving for a remedy, an ap-

propriation has been made and a semi-official department of mines is now building an experimental and testing station in the Pittsburgh, Pennsylvania mining district. The location is in the heart of the most dangerous of the mines containing gas, in the United States. Western Pennsylvania, West Virginia, and eastern Ohio have registered the larger list of dead from mine explosions. Extensive mining and permanently large coal tonnage is clearly with Pennsylvania and West Virginia. The state of Illinois, resourceful in large coal deposits and with a capacity of fifty or sixty million tons of coal per annum is free, or practically so, from gas. The selection of Pittsburgh, convenient to the seat of government, and the headquarters for the department of mines, which will no doubt be created by the next session of Congress, is quite appropriate. Much good is expected from this proposed mining department and experimental station. A meeting was held recently in Washington where mining men who spoke for miners and operators urged before the committees on Mines and Mining for a national mining department. The increase, and increasing number of killed and injured in our coal mines were the strongest reasons urged by all for government action. Rules and safety methods all implying a sort of compulsory education on mining, for miners and mine owners and managers that will protect life and property is in substance what is needed.

During the early days of June 1908 there was a notable meeting of mining men, the state mine inspectors of the various coal producing states, held in the State House at Indianapolis, Indiana. The object of the meeting was to effect an organization of all the mine inspectors in the United States, such organization to co-operate with the government at Washington and to be in position to share in the advantages resulting from the work of the Experimental Station. The state of Iowa was ably represented at this meeting by Mr. John Verner of the First District of Iowa. The selection of Mr. George Harrison, Chief of the Ohio Mine Inspection Service as the first president is indeed a just tribute and recognition of one of the old school of honest and faithful mining men. Mr. J. W. Paul, who was elected secretary of this organization, is a young man of the modern school. The official staff of this new national organization of state mine inspectors consists entirely of strong and capable men. We wish God speed to the new organization, and anticipate benefits in proportion and hope there will be practical co-operation between all parties concerned.

FATAL ACCIDENTS.

Fatal Accidents in District No. 3 For Two Years Ending June 30, 1908.

Date		Name of Deceased	Occupation	Cause of Death	Employed by—	County
1906.						
September	7	Wm. Leming	Miner	Struck by tail rope	Colfax Consolidated Coal Co.	Jasper
November	12	Chas. Westburg	Miner	Fall of slate	Bennett Bros. Coal Co.	Polk
December	6	Santi Celesti	Miner	Fall of slate	Saylor Coal Co.	Polk
December	24	John Richard Johnson	Miner	Fall of slate	Colfax Consolidated Coal Co.	Jasper
December	31	John Henderson	Miner	Fall of slate	Iowa Coal Co.	Polk
1907.						
January	3	Steve Zannatti	Shot examiner	Flying coal	Saylor Coal Co.	Polk
January	21	John Brown	Miner	Falling slate	Enterprise Coal Co.	Polk
January	21	C. E. Berggren	Miner	Fall of coal	Keystone Coal Co.	Polk
January	30	A. F. McCormick	Miner	Fall of coal	Enterprise Coal Co.	Polk
February	9	P. A. Turnell	Engineer	Boiler exploded	Risher Coal Co.	Boone
February	11	Sidney Rees	Driver	Run over by car	Des Moines Coal Co.	Polk
March	1	Peter Olesen	Miner	Fall of slate	Flint Brick & Coal Co.	Polk
May	20	Joe Hedaman	Miner	Fall of slate	Enterprise Coal Co.	Polk
June	5	Sam Lundstrum	Miner	Crushed by cage	Coaldale Fuel Co.	Polk
July	31	Frank Coe	Laborer	Fall of slate	Norwood-White Coal Co.	Polk
September	9	Gilbert Shaw	Operator	Fall of coal	Gilbert Shaw Mine	Jasper
September	10	John Holmberg	Miner	Fall of slate	Bennett Bros Coal Co.	Polk
September	12	Ed J. Quinn	Mine foreman	Fall of coal	Eagle Coal Co.	Polk
October	20	John Dotty	Miner	Fall of slate	Economy Coal Co.	Polk
October	26	W. H. Lammey	Miner	Fall of slate	Center Coal Co.	Polk
December	9	Theodore Benson	Miner	Fall of slate	High Bridge Coal Co.	Dallas
1908.						
January	8	Perry White	Miner	Fall of slate	Saylor Coal Co.	Polk
February	5	O. Countri	Miner	Crushed by cage	Hollingsworth Coal Co.	Polk
February	25	W. A. Fuller	Miner	Fall of slate	Hollingsworth Coal Co.	Polk
March	3	Patrick McGrath	Miner	Fall of slate	Enterprise Coal Co.	Polk
May	22	Mike Sporri	Timberman	Fall of slate	Colfax Consolidated Coal Co.	Jasper
June	6	Dave Morgan	Coupler	Crushed by cage	Norwood-White Coal Co.	Polk
June	19	Chas. McElwain	Sinker	Crushed by dirt tub	Gibson Coal Co.	Polk

NON-FATAL ACCIDENTS.

Non-Fatal Accidents in District No. 3 For Two Years Ending June 30, 1908.

Date		Name	Occupation	Cause of Accident	Character of Injury	Mine Where Accident Occurred	County
1906.							
July	3	August Wenzel	Miner	Fall of slate	Fractured hip	Smith-Lowe Coal Co.	Polk
July	10	Frank Robusky	Driver	Caught between cars	Leg broken	Madison Mine	Polk
July	30	C. A. Monteith	Miner	Fall of slate	Thigh bruised	Coaldale Fuel Co.	Polk
August	1	Thos. Cosgrove	Miner	Fall of slate	Ribs broken	Flint Brick & Coal Co.	Polk
August	14	M. Stanford	Miner	Fall of slate	Back injured	Coaldale Fuel Co.	Polk
August	27	Albert Depew	Miner	Caught by cage	Body bruised	Heaps & Crowe Coal Co.	Boone
September	5	Ellis E. Crane	Miner	Fall of slate	Back injured	Walnut Creek Coal Co.	Polk
September	17	J. L. Ford	Miner	Kicked by mule	Leg and ribs broken	Enterprise Coal Co.	Polk
October	3	Reese P. Jones	Driver	Lunge by mule	Arm broken	Colfax Cons. Coal Co.	Jasper
October	16	James Shortell	Miner	Fall of slate	Back hurt	Bennett Bros. Coal Co.	Polk
October	21	Pete Beckett	Timberman	Fall of slate	Ribs broken	Saylor Coal Co.	Polk
October	—	John Martenson	Topman	Crushed by timber	Leg broken	Delaware Coal Co.	Polk
October	26	Louis Corey	Driver	Run over by car	Foot crushed	Saylor Coal Co.	Polk
October	29	Jas. Guthrie	Timberman	Fall of rock	Hip dislocated	Hollingsworth Coal Co.	Polk
November	1	Robt. Robinson	Miner	Fall of slate	Arm broken	Walnut Creek Coal Co.	Polk
November	7	Thos. H. Brooks	Driver	Caught by timbers	Arm broken	Des Moines Coal Co.	Polk
November	11	D. J. Abram	Boss Driver	Caught by slide	Fingers broken	Colfax Cons. Coal Co.	Jasper
November	17	Norman Thomas	Driver	Run onto by car	Leg broken	Gibson Coal Co.	Polk
December	10	Olaf Anderson	Miner	Fall of slate	Leg and ribs broken	Des Moines Coal Co.	Polk
December	19	Wm. Murray	Miner	Fall of slate	Limbs bruised	Shaw Coal Co.	Polk
December	21	Chas. Apsgren	Miner	Fall of coal	Leg broken	W. D. Johnson Coal Co.	Boone
December	21	E. W. Jones	Driver	Kicked by mule	Leg broken	Enterprise Coal Co.	Polk
1907.							
January	8	Albine Danielson	Cager	Fall of coal	Leg broken	W. D. Johnson Coal Co.	Boone
January	15	Bert Beck	Driver	Fall of slate	Injured about head	Elko Coal Co.	Polk
January	24	Fred Anderson	Timberman	Fall of rock	Leg broken	Crooked Creek C. & R. Co.	Webster
February	15	Orina Patton	Driver	Caught by car	Finger cut off	Boone Coal & Mining Co.	Boone
February	14	M. E. Graves	Driver	Run over by car	Two ribs broken	Des Moines Coal Co.	Polk
February	15	Oli Giuseppi	Miner	Fall of slate	Finger cut off	Enterprise Coal Co.	Polk
March	7	Nick Vitch	Miner	Fall of coal	Leg bruised	Colfax Cons. Coal Co.	Jasper
March	15	Dan Strain	Miner	Run over by car	Leg broken	Rogers Coal Co.	Webster
March	16	Irvin Anspaugh	Trapper	Run over by car	Leg bruised	Des Moines Coal Co.	Polk
March	16	Gus Carlson	Miner	Caught by cars	Skull fractured	Des Moines Coal Co.	Polk
March	23	Lee Hensen	Driver	Caught by cars	Finger cut off	Norwood-White Coal Co.	Polk
March	30	Robt. Blumberg	Miner	Fall of dirt	Leg broken	W. D. Johnson Coal Co.	Boone
April	3	John Lloyd	Driver	Caught by car	Body bruised	Norwood-White Coal Co.	Polk
April	4	Chas. Hodge	Driver	Caught by car	Arm broken	Colfax Cons. Coal Co.	Jasper

NON-FATAL ACCIDENTS—CONTINUED.

Date		Name	Occupation	Cause of Accident	Character of Injury	Mine Where Accident Occurred	County
1907							
April	15	Fred Jackson	Oiler	Caught by car	Finger cut off	Coaldale Fuel Co.	Polk
April	19	Jake Moler	Driver	Run over by car	Leg broken	Enterprise Coal Co.	Polk
May	3	Hugh Timmins	Driver	Caught by car	Body bruised	Boone Coal & Mining Co.	Boone
May	21	A. C. Deaver	Driver	Caught by car	Arm broken	Colfax Cons. Coal Co.	Jasper
May	24	James Lowe	Miner	Fall of slate	Hurt in hip	Bennett Bros. Coal Co.	Polk
June	20	John Giuseppi	Miner	Fall of slate	Foot crushed	Enterprise Coal Co.	Polk
July	25	Peter Smith	Miner	Fall of slate	Leg broken	Coaldale Fuel Co.	Polk
August	16	Doc Robinson	Miner	Explo'n dynamite caps	Ribs broken, face cut	Norwood-White Coal Co.	Polk
August	16	Thos. Scott	Miner	Explo'n dynamite caps	Face and breast cut	Norwood-White Coal Co.	Polk
August	16	N. Robinson	Mine forem'n	Explo'n dynamite caps	Face cut, h'nd broken	Norwood-White Coal Co.	Polk
August	19	C. Richardson	Driver	Kicked by mule	Rib broken	Norwood-White Coal Co.	Polk
August	26	Carl Erickson	Miner	Fall of slate	Arm and leg broken	Smith-Lowe Coal Co.	Polk
October	27	Ed Alquist	Day man	Fall of slate	Hand mashed	Boone Coal & Mining Co.	Boone
October	28	Alex Thompson	Driver	Caught by car	Hand mashed	Boone Coal & Mining Co.	Boone
1908.							
January	9	John Meschler	Comp'y man.	Fall of slate	Shoulder bruised	Saylor Coal Co.	Polk
January	15	Samuel Motte	Miner	Fall of rock	Bruised head	Smiley & Heaps Coal Co.	Boone
January	21	W. J. Wishman	Miner	Fall of slate	Leg broken	Madison Coal Co.	Polk
March	6	Antoni Lundsteen	Miner	Fall of slate	Injured pelvis	Ogden Coal Co.	Boone
March	21	Mike Krail	Shot firer	Blown out shot	Leg broken	Smith-Lowe Coal Co.	Polk
March	31	Theodore Polloni.	Day man	Fall of slate	Leg broken	Smith-Lowe Coal Co.	Polk
January	1	David Reese	Supt.	Struck by wheel	Face and head cut	Norwood-White Coal Co.	Polk
June	30	Michael Heffron	Miner	Fall of coal	Back injured	Bennett Bros. Coal Co.	Polk
1907.							
December	20	Percy Jackson	Miner	Fall of slate	Hip bruised	Enterprise Coal Co.	Polk
1908.							
February	21	M. Carrington	Miner	Fall of slate	Back and hip bruised	Enterprise Coal Co.	Polk
February	26	John Riley	Driver	Run over by car	Leg broken	Enterprise Coal Co.	Polk
1907.							
November	12	Pete Rakiel	Miner	Fall of slate	Two fingers broken	Maple Block Coal Co.	Polk
December	10	Dave Reese	Driver	Caught by car	Hand mashed	Maple Block Coal Co.	Polk
October	23	Pete Johnson	Timberman.	Fall of slate	Foot crushed	Saylor Coal Co.	Polk
1908							
May	13	Jas. McGown	Driver	Run over by car	Leg broken	Saylor Coal Co.	Polk
November	9	A. Mewfridini	Visitor	Fall of slate	Leg broken	Colfax Cons. Coal Co.	Jasper
December	17	Geo. Robinson	Miner	Fall of slate	Shoulder broken	Colfax Cons. Coal Co.	Jasper

1908.							
February	27	Chris Smith	Driver	Kicked by mule	Jawbone broken	Colfax Cons. Coal Co.	Jasper
March	7	Henry Vaughn	Miner	Caught by cars	One arm broken	Colfax Cons. Coal Co.	Jasper
May	14	Andy Johnson	Weigh boss	Exhaust of steam	Leg scalded	Ogden Coal Co.	Boone
1907.							
November	20	Willis Abbet	Cager	Caught by cage	Body bruised	Economy Coal Co.	Polk
1908.							
February	17	John Groon	Miner	Fall of slate	Body bruised	Enterprise Coal Co.	Polk
February	18	C. Lydebotham	Driver	Caught by car	Hips bruised	Norwood-White Coal Co.	Polk
1907.							
September	23	L. Lamson	Top boss	Caught by car	Foot crushed	Norwood-White Coal Co.	Polk
1908.							
June	26	John McCauley	Dumper	Caught by car	Foot crushed	Norwood-White Coal Co.	Polk
February	5	R. Robinson	Miner	Fall of slate	Cut about head	Norwood-White Coal Co.	Polk
October	14	P. Costican	Miner	Fall of slate	Three ribs broken	Norwood-White Coal Co.	Polk
October	20	Bert Lane	Driver	Struck by mine door	Collar bone broken	Norwood-White Coal Co.	Polk
October	1	F. M. Riley	Blacksmith	Fell down chute	Collar bone broken	Des Moines C. & M. Co.	Polk
1908.							
January	13	Stacey Stacy	Driver	Caught by car	Right thumb taken off	West Riverside Coal Co.	Polk

TABLE No. 1.

SHOWING NUMBER OF MINES, OUTPUT OF COAL, NUMBER OF MINERS AND OTHER EMPLOYES IN DISTRICT NO. 8, FOR YEAR ENDING JUNE 30, 1907.

Name of County	Number of mines	Amount of coal of all kinds produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of employes
Polk	31	1,435,876	2,214	686	324	3,224
Jasper	11	385,298	568	190	73	831
Boone	10	238,082	508	190	71	769
Webster	10	118,363	184	84	29	297
Dallas	2	31,370	88	34	21	143
Guthrie	8	12,303	69	3	9	81
Greene	6	22,305	66	8	7	81
Scott	1	2,500	4	.....	.....	4
Total	79	2,236,097	3,701	1,195	534	5,430

TABLE No. 2.

SHOWING NUMBER OF MINES, OUTPUT OF COAL, NUMBER OF MINERS, AND OTHER EMPLOYES IN DISTRICT NO. 8, FOR YEAR ENDING JUNE 30, 1908.

Name of County	Number of mines	Amount of coal of all kinds produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of of employes
Polk	33	1,358,097	2,249	699	301	3,249
Jasper	10	467,552	534	226	76	836
Boone	12	218,491	583	188	93	864
Webster	8	59,031	144	62	23	229
Dallas	3	108,700	199	50	28	277
Guthrie	10	13,143	85	9	10	104
Greene	6	22,226	59	8	8	75
Scott	3	2,750	15	12	3	30
Total	85	2,249,990	3,868	1,254	542	5,664

TABLE No. 3.

SHOWING THE OUTPUT OF THE COAL PRODUCING COUNTIES OF DISTRICT NO. 3, FOR THE PAST SIX YEARS.

Name of County	1903	1904	1905	1906	1907	1908
Polk	996,573	966,172	1,094,521	1,266,224	,425,876	,358,097
Boone	288,055	345,472	422,802	276,505	238,082	218,491
Jasper	323,312	302,599	305,027	333,307	385,298	467,552
Webster	159,990	155,323	122,056	112,223	118,363	59,031
Greene	12,711	15,898	17,470	20,605	22,305	22,226
Guthrie	16,545	29,355	29,416	20,730	12,303	13,143
Dallas	19,990	16,586	13,599	9,888	31,370	108,700
Scott	18,280	14,983	5,210	800	2,500	2,750

TABLE No. 4.

SHOWING TONNAGE IN DISTRICT NO. 3, FOR PAST TEN YEARS, WITH NUMBER OF FATAL ACCIDENTS AND NUMBER OF EMPLOYES, WITH TONNAGE PER ACCIDENT, ETC.

Year	Number of fatal accidents	Tons of coal mined each year	Number of employes	Tons of coal mined per accident	Number of employes for each accident
1899	11	1,555,050	3,437	141,368	312
1900	8	1,508,020	3,819	188,502	477
1901	7	1,607,690	3,904	229,670	558
1902	13	1,653,152	3,878	127,166	298
1903	5	1,835,456	3,691	367,091	738
1904	10	1,846,386	4,989	184,638	499
1905	11	2,010,101	5,380	182,736	489
1906	8	2,040,342	5,566	255,042	695
1907	14	2,236,097	5,430	159,721	388
1908	14	2,249,990	5,664	160,713	397

FATAL ACCIDENTS IN THIRD DISTRICT FOR TWO YEARS ENDING JUNE 30, 1908.

WILLIAM LEMING.

On September 7, 1906, fatal accident occurred to William Leming, a miner in the employ of the Colfax Consolidated Coal Company of Colfax, Jasper county. Accident occurred in Mine No. 7 on Third North, six feet south of point of switchtail rope parting. Death was caused by being struck by tail rope. At the time of his death Leming was in haulage entry when tail rope broke the pulleys loose and the rope struck him causing his death.

CHARLES WESTBURG.

On November 12, 1906, fatal accident occurred to Charles Westburg, a miner employed by the Bennett Bros. Coal Company of Polk County. Westburg was at work at the face of his room when fall of slate occurred killing him. He was working alone in his room. He was 66 years old and had been in the employ of the company six months.

JOHN RICHARD JOHNSON.

On December 24, 1906, fatal accident occurred to John Richard Johnson, an employe of the Colfax Consolidated Coal Company of Jasper county. He was mining in a room with his father at face of No. 9 off 11th West, South Side, Mine No. 7, when a fall of slate occurred severely bruising him about the head and body. The room was driven in about one hundred eight feet from face of entry. Fall occurred at face of room. Mr. Johnson died on night of December 24th from injuries received.

STEVE ZANNATTI.

On January 3, 1907, fatal acident occurred to Steve Zannatti, shot examiner and shot firer at No. 2 Mine, Saylor Coal Company of Polk county. He was in Room No. 2, H. entry north when killed. He had gone back after lighting shot and was crushed about head and shoulders by flying coal. He was 24 years of age and had been in the employ of the company about 18 months.

JOHN BROWN.

On January 21, 1907, fatal accident occurred to John Brown, a miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. He was at the face of 1st West of 5th South entry on East Side. He was killed six feet from inside of his last Bottom shot. Had just finished tamping a rib shot and turned to come out and was caught by a piece of falling slate crushing his head. He was 45 years old and had been in the employ of the company more than two years.

C. E. Berggren.

On January 21, 1907, fatal accident occurred to C. E. Berggren, a miner in the employ of the Keystone Coal Company of Des Moines, Polk county. The deceased was mining off a standing shot when coal fell on him killing him instantly. He was 60 years old and had been in the employ of the company two months.

Sidney Rees.

On February 11, 1907, fatal accident occurred to Sidney Rees, a mule driver in the employ of the Des Moines Coal Mining Company of Marquisville, Polk county. Rees was 17 years old and had been in the employ of the company for three years. He was driving a mule and was nearly to end of run when he fell off car and under car and was killed almost instantly.

A. F. McCormick.

On January 30, 1907, fatal accident occurred to A. F. McCormick, a miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. McCormick was in Room No. 4, back west longwall, when piece of coal fell bruising back and injuring his knee. This man's injuries were not regarded as serious but he became delirious and was taken to the hospital on February 4th, and died Saturday night, February 9th, about 8 P. M., having never regained consciousness.

P. A. Turnell.

On February 9, 1907, fatal accident occurred to P. A. Turnell, an engineer at the Eclipse Mine in Boone county. He was engaged in filling one boiler from another when an explosion occurred blowing boiler to pieces and killing Turnell instantly. The boiler that exploded was not used often. Turnell was a licensed engineer.

Peter Olesen.

On March 1, 1907, fatal accident occurred to Peter Olesen, a miner in the employ of the Flint Brick & Coal Company of Des Moines, Polk county. He was at work in Room 13, Eight North Entry. It seems he was just making preparations to drill a hole and while in the act of filing an augur a large piece of slate fell from the roof killing him instantly.

Sam Lundstrum.

On June 5, 1907, fatal accident occurred to Sam Lundstrum, a miner in the employ of the Coaldale Fuel Company of Polk county. His body was crushed between cage and bottom timbers causing instant death. Engineer was hoisting men. As Lundstrum was getting on cage, engineer thought he got one bell to hoist. Before Lundstrum got ready for hoist cage started away and he lost his balance falling outward toward the bottom. Body projected over cage enough to catch bottom timbers as cage ascended with the result that he was crushed to death between cage and shaft bottom timbers.

JOE HEDAMAN.

On May 20, 1907, fatal accident occurred to Joe Hedaman, a miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. He was at work doing company work shooting down top rock and widening the entry when a fall of rock and slate occurred killing him instantly.

SANTI CELESTI.

On December 6, 1906, fatal accident occurred to Santi Celesti, a miner in the employ of the Saylor Coal Company of Polk county. Accident occurred in Mine No. 1. Fall of slate was cause of the accident.

JOHN HENDERSON.

On December 31, 1906, fatal accident occurred to John Henderson, a miner in the employ of the Iowa Coal Company of Des Moines, Polk county. Henderson was at work in his room when fall of slate occurred killing him.

FRANH COE.

On July 31, 1907, fatal accident occurred to Frank Coe, a laborer in the employ of the Norwood-White Company of Norwoodville, Polk county. Accident happened in Room 4, off of 16th West entry and was caused by a slip in the roof; a large piece of slate falling and killing him instantly.

GILBERT SHAW.

On September 9, 1907, fatal accident occurred to Gilbert Shaw, a miner and operator of Shaw's mine near Monroe, Jasper county. Accident occurred about 7:30 A. M., on above date and was caused by falling coal. Mr. Shaw's head was severely mashed by the fall of coal, and he only lived about two hours after the accident.

JOHN HOLMBERG.

On September 10, 1907, fatal accident occurred to John Holmberg, a miner in the employ of the Bennett Bros. Coal Company of Des Moines, Polk county. The coroners jury brought in a verdict that he came to his death by an accidental fall of slate, on above date.

ED J. QUINN.

On September 12, 1907, fatal accident occurred to Ed J. Quinn, a mine foreman in the employ of the Eagle Coal Company of Des Moines, Polk county. Accident occurred fifty feet west of shaft on main entry. At the time of the accident Mr. Quinn was pulling down from the roof with a pick about ten inches of bony coal, preparatory to setting up timbers, and while doing this a boulder which projected about two feet from the side of the entry, fell out against him, knocking him out under the bony coal which fell on him breaking his back. He lived but a few hours after the accident.

JOHN DOTTY.

On October 20, 1907, fatal accident occurred to John Dotty, a company man in the employ of the Economy Coal Company of Des Moines, Polk county. Mr. Dotty was at work in Ninth North entry, when a fall of slate occurred killing him instantly.

W. H. LAMMEY.

On October 26, 1907, fatal accident occurred to W. H. Lammey, a miner in the employ of the Center Coal Mining Company of Des Moines, Polk county. Mr. Lammey was at work in his own room, within eight feet of face, when a fall of slate occurred killing him almost instantly. He was 62 years of age, and had been in the employ of the company nine days.

THEODORE BENSON.

On December 9, 1907, fatal accident occurred to Theodore Benson, a miner in the employ of High Bridge Coal Company of Dallas county. He was in first north of main east, room 3, when fall of slate occurred injuring him about the head from which injuries he died on December 13th.

PERRY WHITE.

On January 8, 1908, fatal accident occurred to Perry White, a miner in the employ of the Saylor Coal Company, Mine No. 2. He was in Room 7, off second A entry, first west, south, when fall of slate occurred causing his death.

O. COUNTRI.

On February 5, 1908, fatal accident occurred to O. Countri, an entry driver in the employ of the Hollingsworth Coal Company of Des Moines, Polk county. Countri attempted to cross cage after the signal to hoist had been given and was caught by the cage and crushed between the floor of cage and top of runway.

W. A. FULLER.

On February 25, 1908, fatal accident occurred to W. A. Fuller, a miner in the employ of the Hollingsworth Coal Company of Des Moines, Polk county. Mr. Fuller was engaged in working in his own room in the mine when fall of slate occurred causing his death. Coroner's jury verdict was: "Said slate fell in the room in which said Fuller was working, and we further find that said accident was caused by W. A. Fuller in not propping a loose piece of slate which he was aware was loose."

PATRICK MCGRATH.

On March 3, 1908, fatal accident occurred to Patrick McGrath, a miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. Accident happened in Room 1, 8th West A entry. He had about 10 to 14 inches of slate and boulder coming all the way. This piece broke off at the coal as he was mining off a shot of coal. Slate crushed him; breaking his neck and one leg.

MIKE SPORRI.

On May 22, 1908, fatal accident occurred to Mike Sporri, a timberman in the employ of the Colfax Consolidation Coal Company, Mine No. 8, of Colfax, Jasper county. He was knocking a prop from under some slate which he knew to be loose, preparatory to doing some more timbering, when slate fell and crushed him, killing him instantly.

DAVE MORGAN.

On June 6, 1908, fatal accident occurred to Dave Morgan, a coupler in the employ of the Norwood-White Coal Company of Norwoodville, Polk county. The said Dave Morgan was passing from north to south across the shaft after being warned several times not to do so and that it was a dangerous act. Result: He was caught and instantly killed by a descending cage. He was 18 years old and had been in the employ of the company for one year.

CHARLES MCELWAIN.

On June 19, 1908, fatal accident occurred to Charles McElwain, a shaft sinker, in the employ of the Gibson Coal Mining Company of Des Moines, Polk county. Accident occurred while McElwain was engaged in sinking an air shaft at their new mine, No. 5, 1½ miles east of Clive, Polk county. He was at bottom of air shaft when he was struck on back by falling dirt tub. He died at Mercy hospital on June 21, 1908.

NON-FATAL ACCIDENTS OCCURRING IN THE THIRD DISTRICT FOR TWO YEARS ENDING JUNE 30, 1908.

July 3, 1906, August Wenzel, a miner in the employ of the Smith-Lowe Coal Company, of Carbondale, Polk county. Fall of slate fracturing left hip and bruising body.

July 10, 1906, Frank Robusky, a mule driver in the employ of the Madison Coal Company of Des Moines, Polk county. In pulling cars through a break-through Robusky was caught between cars breaking his left leg.

July 30, 1906, C. A. Montieth, a miner in the employ of the Coaldale Fuel Company of Des Moines, Polk county. Fall of slate. Thigh bruised.

August 1, 1906, Thos. Cosgrove, a miner in Mine No. 2 of Fline Brick & Coal Company, Des Moines, Polk county. Fall of slate. Two ribs broken and ankle and back injured.

August 14, 1906, M. Stanford, a miner in the employ of the Coaldale Fuel Company of Des Moines, Polk county. Back hurt by fall of slate.

August 27, 1906, Albert Depew, a miner in the employ of the Heaps & Crowe Coal Company of Boone, Boone county. He was caught between bottom of cage and shaft. Bruised body.

September 5, 1906, Ellis E. Crane, a miner in the employ of the Walnut Creek Coal Company of Polk county. Fall of slate injuring him in pelvic region.

September 17, 1906, J. L. Ford, a miner in employ of Enterprise Coal Company of Enterprise, Polk county. Kicked by mule. Right leg broken, left leg dislocated and five ribs broken.

October 3, 1906, Reese P. Jones, a driver for the Colfax Consolidated Coal Company of Colfax, Jasper county. Arm fractured. Lunge by mule.

October 16, 1906, James Shortell, a miner in the employ of Bennett Bros. Coal Company of Des Moines, Polk county. Fall of slate. Hurt in back.

October 21, 1906, Pete Beckett, a timberman in the employ of the Saylor Coal Company, Mine No. 2, Polk county. Fall of slate. Ribs broken.

October —, 1906, John Martenson, top man in the employ of the Delaware Coal Company of Des Moines, Polk county. Leg broken, crushed by timber.

October 26, 1906, Louis Carey, a driver in the employ of the Saylor Coal Company, Mine No. 1, Polk county. Run over by car. Foot mashed.

October 29, 1906, James Guthrie, a timberman in the employ of the Hollingsworth Coal Company of Des Moines, Polk county. Fall of rock. Dislocating one hip and cutting him about the face.

November 1, 1906, Robert Robinson, a miner in the employ of the Walnut Creek Coal Company of Des Moines, Polk county. Fall of roof occurred cutting his head and face badly and breaking one arm.

November 7, 1906, Thos. H. Brooks, a mule driver for Des Moines Coal Company of Des Moines, Polk county. Arm caught between timbers and water box and broken.

November 11, 1906, D. J. Abram, a boss driver for the Colfax Consolidated Coal Company of Jasper county. Fractured fingers. Slide of fall he was working on.

November 17, 1906, Norman Thomas, a driver in the employ of the Gibson Coal Company of Polk county. He was coming out of entry with loaded cars and ran into empty car. One leg broken.

December 10, 1906, Olaf Anderson, a miner in the employ of the Des Moines Coal Company of Polk county. Fall of slate. Leg, finger and two ribs broken.

December 19, 1906, William Murray, a miner in the employ of the Shaw Coal Company of Des Moines, Polk county. Fall of slate. Head and limbs bruised.

December 21, 1906, Charles Apsgren, a miner in the employ of the W. D. Johnson Coal Company of Boone, Boone county. Fall of coal in room. Leg broken.

December 21, 1906, E. W. Jones, a driver in the employ of the Enterprise Coal Company of Enterprise, Polk county. He was coming out of the mine with a trip of cars when mule kicked him, breaking his leg.

January 8, 1907, Albine Danielson, a cager in the employ of the W. D. Johnson Coal Company of Boone, Boone county. Fall of coal down shaft. Leg broken.

January 15, 1907, Bert Beck, a driver in the employ of the Elko Coal Company of Des Moines, Polk county. Pillar had been removed and he ran in to get mule out. Fall of slate. Injured about head and over one eye.

January 24, 1907, Fred Anderson, a timberman in the employ of the Crooked Creek Coal & Railroad Company of Webster county. Fall of rock. Right leg broken.

February 15, 1907, Orina Patton, a mule driver in the employ of the Boone Coal & Mining Company of Fraser, Boone county. Car ran off track and while putting it back mule started up and car caught his hand taking one finger off.

February 14, 1907, M. E. Graves, a driver in the employ of the Des Moines Coal Company of Polk county. Car ran over him. Two ribs broken.

February 15, 1907, Oli Giuseppi, a miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. Fall of slate. One finger cut off.

March 7, 1907, Nick Vitch, a miner in the employ of the Colfax Consolidated Coal Company of Jasper county. Fall of coal. Leg and foot bruised.

March 15, 1907, Dan Strain, a miner in the employ of Rogers Coal Company of Webster county. Run over by car. Leg broken.

March 16, 1907, Irvin Anspaugh, a trapper for the Des Moines Coal Company of Polk county. Cars came uncoupled causing wreck. Foot and leg bruised.

March 16, 1907, Gus Carlson, a miner in the employ of the Des Moines Coal Company of Polk county. Cars came uncoupled and caused wreck. Fractured skull.

March 23, 1907, Lee Hensen, a driver in the employ of the Norwood-White Coal Company of Norwoodville, Polk county. Hensen tried to stop his mule by hooking tail chain onto end of car and in so doing he got his finger under the hook cutting finger end off.

March 30, 1907, Robert Blumberg, a laborer in the mine of the W. D. Johnson Coal Company of Boone, Boone county. Leg broken by fall of dirt.

April 3, 1907, John Lloyd, a driver in the employ of the Norwood-White Coal Company of Norwoodville, Polk county. Caught in car and bruised about body and wrist cut.

April 4, 1907, Charles Hodge, a driver for the Colfax Consolidated Coal Company of Jasper county. Failed to sprag cars. Arm broken.

April 15, 1907, Fred Jackson, an oiler in the employ of the Coaldale Fuel Company of Polk county. Car ran over his hand. Three fingers bruised; one taken off.

April 19, 1907, Jake Moler, a mule driver in the employ of the Enterprise Coal Company of Enterprise, Polk county. Run over by car. Leg broken.

May 3, 1907, Hugh Timmins, a mule driver in the employ of the Boone Coal & Mining Company of Fraser, Boone county. Squeezed between car and rib and badly bruised. Two weeks idle.

May 21, 1907, A. C. Deaver, driver for Colfax Consolidated Coal Company of Colfax, Jasper county. Failure to sprag cars. Arm broken.

May 24, 1907, James Lowe, a miner in the employ of the Bennett Bros. Coal Company of Des Moines, Polk county. Fall of slate. Hurt in hip.

June 20, 1907, John Giuseppi, a miner in the employ of the Enterprise Coal Company of Polk county. Foot crushed by fall of slate.

July 25, 1907, Peter Smith, a miner in the employ of Coaldale Fuel Company of Polk county. Fall of slate breaking hip bone and bruising ankle.

August 16, 1907, Doc Robinson, a miner in the employ of Norwood-White Coal Company, Polk county. Explosion of dynamite caps. Face and breast cut by tin and copper. Also three ribs broken.

August 16, 1907, Thomas Scott, miner in employ of Norwood-White Coal Company, Polk county. Explosion of dynamite caps. Face and breast badly cut by pieces of tin and copper.

August 16, 1907, Nicholas Robinson, a mine foreman in employ of Norwood-White Coal Company of Polk county. Explosion of dynamite caps. Face and hands badly cut, and right hand broken.

August 19, 1907, C. Richardson, a driver in Mine No. 1, Norwood-White Coal Company of Polk county. Kicked by mule. One rib broken and leg bruised.

August 26, 1907, Carl Erickson, a miner at No. 4, Smith-Lowe Coal Company, Carbondale, Polk county. Fall of slate breaking one arm and one leg.

October 27, 1907, Ed Alquist, a day man in the employ of the Boone Coal & Mining Company, Fraser, Boone county. Fall of slate mashing hand and breaking one finger.

October 28, 1907, Alex Thompson, a driver in the employ of the Boone Coal & Mining Company of Fraser, Boone county. Fingers mashed between two cars.

January 9, 1908, John Meschler, a company man in the employ of the Saylor Coal Company, Mine No. 2, Polk county. Fall of slate causing scalp wound and bruising shoulder.

January 15, 1908, Samuel Motte, a miner in the employ of Smiley & Heaps Coal Company of Boone, Boone county. Bruised about head and face by falling rock.

January 21, 1908, W. J. Wishman, a miner in the employ of the Madison Coal Company of Des Moines, Polk county. Fall of slate breaking one leg below knee.

March 6, 1908, Antone Lundsteen, a miner in the employ of the Ogden Coal Company of Ogden, Boone county. Fall of slate. Injury to pelvis bone.

March 21, 1908, Mike Krail, a shot fifer in the employ of the Smith-Lowe Coal Company of Carbondale, Polk county. Mine No. 4. Lighted shot blew through and the flying coal broke his left leg and the small bones in one hand.

March 31, 1908, Theodore Polloni, a day man employed by the Smith-Lowe Coal Company, Mine No. 3, of Carbondale, Polk county. Fall of slate breaking right leg between the ankle and the knee.

January 1, 1908, David Reese, mine superintendent, employed by the Norwood-White Coal Company of Norwoodville, Polk county. Struck by wheel from haulage rope. Cut about face and head.

June 30, 1908, Michael Heffron, miner in employ of the Bennett Bros. Coal Company of Des Moines, Polk county. Caught by falling coal. Injured in back and side.

December 20, 1907, Percy Jackson, a miner in the employ of Enterprise Coal Company, Mine No. 2, Polk county. Fall of slate bruising hip and foot.

February 21, 1908, M. Carrington, a miner in Mine No. 1, Enterprise Coal Company, Polk county. Fall of boulder bruising back and hip.

February 26, 1908, John Riley, a driver in Mine No. 1, Enterprise Coal Company, Polk county. Run over by car. One leg broken.

November 12, 1907, Pete Rakiel, miner in employ of Maple Block Coal Company, Polk county. Two fingers broken. Fall of slate.

December 10, 1907, Dave Reese, driver in employ of Maple Block Coal Company of Polk county. Bone in hand fractured. Caught by car.

October 23, 1907, Pete Johnson, a timberman in employ of Saylor Coal Company of Polk county. Fall of slate crushing one foot.

May 13, 1908, Jas. McGown, a driver in employ of Saylor Coal Company of Polk county. Run over by car and one leg broken.

Nov. 9, 1907, Andrew Mewfridini was visiting brother in mines of Colfax Consolidation Coal Company when fall of slate occurred at face of room breaking one leg.

December 17, 1907, George Robinson, a miner in employ of Colfax Consolidation Coal Company of Jasper county. Fall of slate. Fractured shoulder blade.

February 27, 1908, Chris Smith, driver for Colfax Consolidation Coal Company of Jasper county. Fractured jawbone. Kicked by a mule.

March 7, 1908, Henry Vaughn, a miner in employ of Colfax Consolidation Coal Company of Jasper county. Caught between cars. One arm broken.

May 14, 1908, Andy Johnson, weigh boss for Ogden Coal Company of Boone county. Leg scalded by exhaust of steam.

November 20, 1907, Willis Abbet, a cager in employ of Economy Coal Company of Polk county. Body bruised. Caught by cage.

On February 17, 1908, John Groon, miner in the employ of the Enterprise Coal Company of Enterprise, Polk county. Fall of slate, badly bruised body.

February 18, 1908, C. Lydebotham, a driver for Norwood-White Coal Company of Polk county. Caught by car and hips bruised.

September 23, 1907, L. Lamson, a top boss, Norwood-White Coal Company of Polk county. Caught by car and foot crushed.

June 26, 1908, John McCauley, a dumper for Norwood-White Coal Company of Polk county. Caught by car and foot crushed.

February 5, 1908, R. Robinson, a miner at Norwood-White Coal Company of Polk county. Cut about head by fall of slate.

October 14, 1907, P. Costican, a miner for Norwood-White Coal Company of Polk county. Three ribs broken by fall of slate.

October 20, 1907, Bert Lane, a driver for Norwood-White Coal Company of Polk county. Collar bone broken. Struck by mine door.

October 1, 1907, F. M. Riley, a blacksmith in the employ of the Des

Moines Coal & Mining Company of Polk county. Was dumping coal and fell down the chute breaking his collar bone.

January 13, 1908, Stacey Stacy, a driver in the employ of the West Riverside Coal Company of Des Moines, Polk county. Loaded car left track fastening his hand between coal and car. Thumb on right hand taken off.

"IOWA COAL."

Paper read before the Iowa and Nebraska Coal Dealers Association at their annual meeting in Waterloo, Iowa, by Joseph Sharp, Commissioner for the Iowa Coal Operators' Association.

"The subject of Iowa coal has been a matter in which I have been interested for more than twenty-two years, having spent seventeen years of my life in the coal mines and about five years in the service of the miners. This I feel entitles me to some knowledge of the subject assigned by your worthy secretary.

"Iowa coal in my judgment has suffered more from a prejudice in the minds of some people than in the lack of real fuel value. I desire to refer to some tests that have been made under direction of the United States government. First: The War department use as their standard in measuring the values of fuel a cord of oak wood. This in my judgment comes very near a thorough practical test. I have in figures published as a result of one of these tests from coal produced at Centerville, Iowa. This test shows that the block coal in southern Iowa is much better than a great number of other kinds of coal. 2962 pounds of Centerville coal equals one cord of oak wood in the production of steam, or in other words less than a ton and a half of Iowa coal in this test shows it will evaporate as much water as will one cord of the best oak wood. Smoky Hollow coal which is also an Iowa product shows by the same test that 2900 pounds of coal equals one cord of oak wood. We find in a report from the regular observations on boiler tests at the United States testing plant in St. Louis, Mo., blue prints will show moisture 8.52, volatile matter 25.12, fixed carbon 44.55, ash 7.80. You will note that the fuel according to this test is 83.67 per cent of the total, and is therefore equal in heating power to almost any coal that is brought into active competition with it. We find, further, that one pound of dry coal coming from the block fields of Iowa contains 12062 B. T. U.'s. This, of course, is under the very best conditions, as it comes from the mines and is used in the ordinary boiler work, it easily equals almost any other coal, for by a test under these conditions, we find 10282 B. T. U.'s. I think, in view of these statements coming from an unquestioned authority, we are safe in assuming that Iowa coal is good. * * * * * * I feel interested in Iowa coal for another and very important reason. There are hundreds and thousands of dollars invested in the Iowa coal mines, giving employment to more than 16,000 workmen. These men produce annually a little more than 8,000,000 tons of coal—earning in wages approximately $12,000,000 and all of this money as earned in wages is spent by them in the several communities and retained within the boundaries of the state. Every dollar that you men spend in the

purchase of Iowa coal is retained and continues in circulation at home and goes far in the promotion of the Iowa coal industry, and many other industries that are dependent on the coal business. We have towns and villages that are entirely dependent upon the mining industry for their existence, hence, the duty in my judgment of every citizen of Iowa is to see to it that Iowa coal is given preference over other coals, at least, when it is equal to the foreign product. On the other hand, the money with which you purchase foreign coal must, of necessity, go to the foreign producer, and cannot benefit in this respect the home industry, or enliven the business of Iowa, but will promote business conditions in the distant state or community. For the foregoing reasons we believe that you men are and of right ought to be very much interested in the subject of Iowa coal."

SUMMARY

OF THE

MINE INSPECTORS' REPORTS

FOR THE

TWO YEARS ENDING JUNE 30, 1908

SUMMARY OF THE MINE INSPECTORS' REPORTS FOR THE TWO YEARS ENDING JUNE 30, 1908.

During the year ending June 30, 1907, the coal production of Iowa amounted to 7,568,425 tons of coal, exceeding the output of the previous year by 550,940 tons. Three hundred and twenty-nine mines were in operation during the year, and 17,045 employes worked in and around the mines in the first half of February 1907. Eight of the eleven counties which produced more than 100,000 tons during the year, showed an increase in tonnage, while three showed a decrease in their coal output.

No strikes or disagreements of consequence between the miners and mine operators occurred during the year.

In recent years the annual coal production of Iowa has increased steadily, year by year, but that record has not been maintained in the year ending June 30, 1908. Compared with the year ending June 30, 1907, last year showed a loss in the state's coal output of 412,990 tons. A number of causes combined to bring about this shrinkage. The financial flurry of last year with its consequent business depression perhaps was the main cause, although the closing down of the mines during last April, while the adjustment of the mining scale was under consideration, was a large contributary factor. An agreement between the miners and operators as to wages and working conditions, and extending until April 1, 1910, was reached in the latter part of last April, giving the assurance that the coal industry of Iowa will be free from serious disagreements between the contracting parties during the time covered by the agreement.

The following tables give the coal producing counties of the state, the number of mines, the coal output and the number of persons employed in and about the mines for the two years ending June 30, 1908.

NUMBER OF MINES IN EACH COUNTY, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES FOR YEAR ENDING JUNE 30, 1907.

Number	County	Number of mines	Tons of coal of all grades produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number employed
1	Monroe	23	2,441,770	2,361	863	273	3,497
2	Polk	30	1,425,876	2,214	686	324	3,224
3	Appanoose	93	1,157,067	2,884	616	388	3,888
4	Mahaska	37	689,870	1,001	345	179	1,525
5	Marion	20	394,481	555	151	69	775
6	Jasper	11	385,298	568	190	73	831
7	Wapello	21	273,556	449	107	73	629
8	Boone	10	238,082	508	190	71	769
9	Wayne	10	159,758	347	113	61	521
10	Lucas	4	126,579	159	53	25	237
11	Webster	10	118,363	184	84	29	297
12	Dallas	2	31,370	88	34	21	143
13	Greene	6	22,305	66	8	7	81
14	Adams	12	20,490	142	18	18	178
15	Page	5	15,981	76	17	10	103
16	Taylor	7	15,951	81	18	10	109
17	Keokuk	5	15,000	29	7	6	42
18	Van Buren	6	13,050	42	6	13	61
19	Guthrie	8	12,303	69	3	9	81
20	Warren	4	3,565	23	2	3	28
21	Scott	1	2,500	4	-------	-------	4
22	Davis	1	2,410	10	2	4	16
23	Jefferson	2	1,900	4	1	1	6
	Total	329	7,568,425	11,864	3,514	1,667	17,045

NUMBER OF MINES IN EACH COUNTY, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES FOR YEAR ENDING JUNE 30, 1908.

Number	County	Number of mines	Tons of coal of all grades produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number employed
1	Monroe	23	2,167,061	2,165	1,153	316	3,634
2	Polk	33	1,358,097	2,249	699	301	3,249
3	Appanoose	91	1,107,806	2,991	629	406	4,026
4	Mahaska	35	772,468	1,075	330	181	1,586
5	Jasper	10	467,552	534	226	76	836
6	Marion	20	327,745	498	134	61	693
7	Wapello	20	244,214	388	106	65	559
8	Boone	12	218,491	583	188	93	864
9	Wayne	9	124,465	327	94	50	471
10	Dallas	3	108,700	199	50	28	277
11	Lucas	3	74,288	112	40	20	173
12	Webster	8	59,031	144	62	23	229
13	Greene	6	22,226	59	8	8	75
14	Adams	10	17,760	120	14	14	148
15	Van Buren	8	17,518	39	10	17	66
16	Page	5	14,045	75	12	9	96
17	Taylor	6	13,861	58	14	7	79
18	Guthrie	10	13,143	85	9	10	104
19	Keokuk	5	11,900	24	5	6	35
20	Warren	6	5,950	29	3	5	37
21	Davis	5	4,364	22	3	8	33
22	Scott	3	2,750	15	12	3	30
23	Jefferson	2	2,000	8	2	2	12
	Total	333	7,155,435	11,800	3,803	1,709	17,312

NUMBER OF MINES IN EACH DISTRICT, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES FOR THE YEAR ENDING JUNE 30, 1907.

District	Number of mines	Tons of coal of all grades produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of employes
Number 1	142	2,843,023	5,017	1,372	700	7,089
Number 2	108	2,489,305	3,146	947	433	4,526
Number 3	79	2,236,097	3,701	1,195	534	5,430
Total	329	7,568,425	11,864	3,514	1,667	17,045

NUMBER OF MINES IN EACH DISTRICT, THEIR COAL OUTPUT, NUMBER OF MINERS AND OTHER EMPLOYES, FOR THE YEAR ENDING JUNE 30, 1908.

District	Number of mines	Tons of coal of all grades produced	Number of miners employed	Number of other inside employes	Number of outside employes	Total number of employes
Number 1	134	2,653,599	4,973	1,388	708	7,069
Number 2	114	2,251,846	2,959	1,161	459	4,579
Number 3	85	2,249,990	3,868	1,254	542	5,664
Total	333	7,155,435	11,800	3,803	1,709	17,312

SUMMARY OF ACCIDENTS FOR THE TWO YEARS ENDING JUNE 30, 1908.

CAUSE OF FATAL MINE ACCIDENTS IN IOWA DURING THE YEAR ENDING JUNE 30, 1907, AND COUNTIES IN WHICH ACCIDENT OCCURRED.

Cause	Appanoose	Monroe	Wayne	Mahaska	Wapello	Marion	Polk	Boone	Jasper	Total
Falls of slate or coal	3	2	----	4	----	1	8	----	1	19
Run over by cars	----	3	----	----	----	----	1	----	----	4
Falling down shaft	----	----	1	1	1	----	----	----	----	3
Flying coal,—premature explosion	----	2	----	----	----	----	1	----	----	3
Crushed by cage	----	----	----	1	1	----	1	----	----	3
Struck by tailrope	----	----	----	----	----	----	----	----	1	1
Boiler explosion	----	----	----	----	----	----	----	1	----	1
Crushed by box car	----	1	----	----	----	----	----	----	----	1
Total	3	8	1	6	2	1	11	1	2	35

CAUSES OF SERIOUS MINE ACCIDENTS IN IOWA DURING YEAR ENDING JUNE 30, 1907, AND COUNTY IN WHICH ACCIDENT OCCURRED.

Cause	Appanoose	Monroe	Mahaska	Wapello	Marion	Van Buren	Polk	Boone	Jasper	Webster	Total
Falls of slate and coal	6	19	4	5	1	----	15	3	1	1	55
Injured by cars	2	10	2	2	----	----	10	2	2	1	31
Flying coal—explosives	----	2	1	3	----	2	----	----	----	----	8
Struck by cage	1	----	2	----	----	----	----	1	----	----	4
Miscellaneous	2	1	2	----	1	----	4	----	1	----	11
Total	11	32	11	10	2	2	29	6	4	2	109

CAUSES OF FATAL MINE ACCIDENTS IN IOWA DURING THE YEAR ENDING JUNE 30, 1908, AND COUNTIES IN WHICH ACCIDENTS OCCURRED.

Cause	Appanoose	Monroe	Page	Mahaska	Wapello	Marion	Polk	Jasper	Dallas	Total
Falls of slate and coal	3	6	2	3	1	2	8	2	1	28
Run over by car	----	1	----	----	1	----	----	----	----	2
Struck by cage	1	----	----	----	----	----	3	----	----	4
Falling down shaft	----	1	----	1	----	----	----	----	----	2
After-damp	----	2	----	----	----	----	----	----	----	2
Total	4	10	2	4	2	2	11	2	1	38

CAUSES OF SERIOUS MINE ACCIDENTS IN IOWA DURING YEAR ENDING JUNE 30, 1908, AND COUNTY IN WHICH ACCIDENT OCCURRED.

Cause	Appanoose	Monroe	Lucas	Wayne	Mahaska	Wapello	Marion	Polk	Boone	Jasper	Total
Falls of slate and coal	7	12	2	1	6	6	2	13	3	2	54
Injured by cars	----	11	----	2	3	2	----	7	1	1	27
Flying coal—explosives	----	1	----	----	2	----	----	4	----	----	7
Miscellaneous	----	2	----	----	1	2	----	5	1	1	12
Total	7	26	2	3	12	10	2	29	5	4	100

FATAL AND SERIOUS ACCIDENTS IN THE MINES OF THE STATE DURING THE YEAR ENDING JUNE 30, 1907, WITH RELATION TO COAL PRODUCED, AND NUMBER OF EMPLOYES.

Districts	Number of Accidents		Number of tons of coal produced	Tons of Coal Produced for Each Accident		Number of employes	Number of Employes for Each Accid'nt	
	Fatal	Serious		Fatal	Serious		Fatal	Serious
Number 1	9	31	2,843,023	315,801	91,710	7,089	787	227
Number 2	12	36	2,489,305	207,442	69,147	4,526	377	126
Number 3	14	42	2,236,097	159,721	53,240	5,430	388	129
Total	35	109	7,568,425	216,241	69,435	17,045	487	156

FATAL AND SERIOUS ACCIDENTS IN THE MINES OF THE STATE DURING YEAR ENDING JUNE 30, 1908, WITH RELATION TO COAL PRODUCED AND NUMBER OF EMPLOYES.

Districts	Number of Accidents		Number of tons of coal produced	Tons of Coal Produced for Each Accident		Number of employes	Number of Employes for Each Accid'nt	
	Fatal	Serious		Fatal	Serious		Fatal	Serious
Number 1	15	37	2,653,599	176,906	71,718	7,060	471	190
Number 2	9	25	2,251,846	250,205	90,074	4,579	508	183
Number 3	14	38	2,249,990	160,713	59,210	5,664	404	149
Total	38	100	7,155,435	188,301	71,554	17,312	455	173

TABLE SHOWING FATAL MINE ACCIDENTS IN IOWA FOR LAST FIFTEEN YEARS, THEIR RELATION TO COAL TONNAGE AND EMPLOYES.

Year	Number of accidents	Tons of coal produced	Tons of coal per accident	Number of employes	Fatality rate per 1,000 employes
1894	19	3,777,393	198,810	10,258	1.9
1895	20	3,195,836	159,792	10,992	1.8
1896	22	3,525,490	160,254	11,451	2.
1897	21	3,799,734	190,464	11,678	1.8
1898	26	4,397,722	169,143	10,550	2.5
1899	20	4,949,310	247,466	11,029	1.8
1900	29	5,117,285	176,458	13,041	2.2
1901	27	5,441,863	201,550	13,175	2.
1902	55	5,514,206	100,258	13,002	4.2
1903	21	6,185,734	294,559	13,192	1.6
1904	31	6,214,379	200,464	16,315	1.9
1905	24	6,806,011	283,584	17,624	1.4
1906	37	7,017,485	189,661	16,825	2.2
1907	35	7,568,425	216,241	17,045	2.05
1908	38	7,155,435	188,301	17,312	2.2